EARN YOUR OWN VIRTUAL INSTRUMENT RATING!

COMPUTER PILOT

VOLUME 9 ISSUE 10 **OCTOBER 2005**
USA $7.95
CANADA $9.95
AUSTRALIA $9.85 (INC. GST)
A PC AVIATOR PUBLICATION

...the Magazine for Desktop Pilots and Flight Simulator Enthusiasts

FREE FLYING... VFR in Israel

DIY PANEL BUILDING Third and Final Tutorial

IFC BLACKPOOL 2005 Convention Report

ATC SERIES CONTINUES... Delivery Control

FLYING HIGH! Operating at Altitude

...REVIEWS • FSPASSENGERS 2004 • X-PLANE CITY SCENERIES • BONANZA F33A • MIDWAY & PARIS FOR FS200

Round Robin Adventures Fedex Regular Transpor
Ground School The Propelle
Plus! Freeware Frenzy & Hardware Corne

FREE PULLOUT POSTER!

UNIQUE DOWNLOAD CODE: CP10-WQB5B34F

ALL THIS AND MORE IN THE WORLD'S #1 FLIGHT SIMULATION MAGAZIN

Your Flight Simulator World Will Never look The

WITH MegaScenery &

HYPER-REALISTIC PHOTO-SCENERY FOR MICROSOFT

A BEFORE & AFTER SCREENSHOT OF GLACIER PEAK, WASHINGTON STATE.
SHOWING WHAT YOU ARE EXPERIENCING NOW AND WHAT YOU'LL EXPERIENCE WITH MEGASCENERY!

COMPREHENSIVE INFORMATION AT WWW.MEGASCENERY.COM

Say goodbye to boring default scenery forever! MegaScenery and MegaCITY transform your Microsoft Flight Simulator Scenery World from artificial... to REAL! MegaScenery is created from satellite images and aerial photos. What you get is not just a recreation of the real world but instead the actual real world ported into Microsoft Flight Simulator 2004 for simulated flight over a world that's so real you'll be amazed!

MegaScenery and MegaCITY let you experience all the landmarks and features of the area covered and enables you to fly real VFR – Day and Night.

Here's what you get when you're flying MegaScenery....

- **Hyper-realistic satellite scenery at 5 meters per pixel (MegaScenery titles) and aerial photos recreated from 1 and 2 feet per pixel (MegaCITY titles).** It's the real world teleported into Flight Simulator Scenery. 5 meters per pixel means that you can even see the rooftop on your own house. Fly VFR like you've never flown it before on a PC simulator.
- **Day and Night Scenery.** Soar and explore the real world - during the day and at night!
- **Winter Scenery too!** In selected areas, where required by geographical location, you also get realistically rendered snow covered scenery. e.g. MegaScenery New York. So you're getting up to 3 sceneries in the one package.
- **Improved Autogen.** We replace default FS2004 autogen scenery with our "more-correct" version.
- **Hi-resolution DEM (mesh).** While MegaScenery is so realistic that you don't need hi-res mesh - our recent releases incorporate hi-res mesh at 30 meters.
- **The list goes on... You also get realistic water.** Our hand etched coastlines and shores mean that bodies of water such as lakes maintain their "water properties". So you can land your float planes on them
- **Relocation of default FS2004 objects to correct location.** That's right MegaScenery, upon installation, will relocate default FS2004 objects to their absolute correct geographic co-ordinates.
- **Faster Framerates!** Yes, your Flight Simulator, with hyper-realistic MegaScenery, will run smoother and faster than the default artificial scenery.
- **Developed specifically for Microsoft Flight Simulator 2004**
- **Printed full color aeronautical charts,** bound printed instrument charts and a sizeable manual with professional flight lessons. (Full Kit Versions)
- **A total value packed, realism transforming scenery product** For Microsoft Flight Simulator that you wouldn't think was possible for such a low price!

*ALSO AVAILABLE AT THE FOLLOWING RETAILERS IN THE USA - **FRY'S ELECTRONICS** AND **MICROCENTER STORES.***

© 2005 PC AVIATOR INC. AEROSOFT AUSTRALIA PTY LTD. MEGASCENERY AND MEGACITY ARE DEVELOPED BY AEROSOFT AUSTRALIA PTY LTD AND PUBLISHED BY PC AVIATOR INC.

MEGASCENERY & MEGACITY TITLES AVAILABLE

"FULL KIT" VERSIONS WHERE SPECIFIED INCLUDE FULL COLOR MAPS AND CHARTS FOR AREA COVERED.

MEGASCENERY VOL. 1: SOUTHERN CALIFORNIA
14,000 square miles of SoCal including LA and San Diego
Lite Version: $29.95 Full Kit Version: SOLD OUT
DVD Media

MEGASCENERY VOL. 2: NEW YORK
22,000 square miles of New York, Long Island, NJ and CT
Lite Version: $29.95 Full Kit Version: $39.95
CD-ROM Media

MEGASCENERY VOL. 3: NORTHERN CALIFORNIA
22,000 square miles of Northern California including San Francisco and Sacramento
Lite Version: $29.95 Full Kit Version: $39.95
CD-ROM Media

MEGASCENERY VOL. 4: PACIFIC NORTHWEST
30,000 square miles of Pacific Northwest including Seattle in aerial photo detail.
Lite Version: $29.95 Full Kit Version: $39.95
DVD Media

MEGASCENERY VOL. 5: MID ATLANTIC
(AVAILABLE OCTOBER 2005)
20,000 square miles of Mid Atlantic Including Washington DC and Baltimore in aerial photo detail.
Lite Version: $29.95 Full Kit Version: $39.95
DVD Media

MEGACITY SAN FRANCISCO
3000 sq miles of San Francisco Bay recreated from 2 foot per pixel aerial photos
Price: $24.95 - CD-ROM

MEGACITY DENVER
3600 square miles of Denver and surrounding area recreated from 1 foot per pixel aerial photos
Price: $19.95 - CD-ROM

MEGACITY DALLAS/FORT WORTH
4600 square miles of Dallas/Fort Worth and surrounding area recreated from 2 foot per pixel aerial photos
Price: $24.95 - CD-ROM

MEGASCENERY MAIL ORDER FORM

BILL TO...

Name: .....

Address: .....

CITY: .....STATE: .....ZIP: .....

Phone: .....

SHIP TO (if different from Bill To)...

Name: .....

Address: .....

CITY: .....STATE: .....ZIP: .....

Phone: .....

Please Check (✓) Each Title You Wish To Purchase

MEGASCENERY TITLES

- ☐ MegaScenery Vol 1: Southern California (Lite) $29.95
- ☐ MegaScenery Vol 2: New York (Lite) $29.95
- ☐ MegaScenery Vol 2: New York (Full) $39.95
- ☐ MegaScenery Vol 3: Northern California (Lite) $29.95
- ☐ MegaScenery Vol 3: Northern California (Full) $39.95
- ☐ MegaScenery Vol 4: Pacific Northwest (Lite) $29.95
- ☐ MegaScenery Vol 4: Pacific Northwest (Full) $39.95
- ☐ MegaScenery Vol 5: Mid Atlantic (Lite) October $29.95
- ☐ MegaScenery Vol 5: Mid Atlantic (Full) October $39.95

MEGACITY TITLES

- ☐ MegaCITY San Francisco $24.95
- ☐ MegaCITY Denver $19.95
- ☐ MegaCITY Dallas/Fort Worth $24.95

CALCULATING SHIPPING CHARGES: For shipping please add $3.95 for first title and 50 cents for each additional title.
e.g. 3 titles add $4.95 for shipping. Shipping is by Priority Mail.

SUBTOTAL: Less 5% for Computer Pilot Subscribers: .....

SHIPPING: ..... ORDER TOTAL: .....

PAYMENT METHOD: ☐ CHECK ☐ MONEY ORDER ☐ VISA ☐ MASTERCARD ☐ AMERICAN EXPRESS ☐ DISCOVER

Please note that these prices are in $USD. If you are ordering from our Australian office, please call for pricing or visit www.pcaviator.com for Australian dollar pricing. If paying by check or money order please make them payable to PC Aviator Inc

CREDIT CARD NUMBER:

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ **EXP:** ☐☐☐☐

Payment Amount: $ .....

Name On Card: .....

SENDING YOUR ORDER: If you are ordering by mail, please mail to... ***PC Aviator inc. 839 Surfside Drive, Surfside Beach, SC, 29575.***

TO ORDER BY PHONE:
Please have your order details ready and
CALL TOLL FREE 1-800-664-0033
between 9am and 5pm Mon – Fri. Outside North America
CALL +1-843-232-1160

TO ORDER BY FAX: Please fax to: 843-232-1166

TO ORDER ONLINE: www.megascenery.com

AEROSOFT AUSTRALIA

PC Aviator
The Flight Simulation Company!

Firstly this month, let me extend my congratulations to Computer Pilot reader/subscriber Glen Oberg, who was the winning entrant in the "I read your column Editor" experiment I proposed several issues ago. A 12 month, 12 issue extension to Glen's subscription was awarded this month. Thanks goes out to all readers who emailed in, the response was very good and proved that a large number of readers do actually read every word of every issue front to back! Many useful comments were also added, and these have been taken under consideration to help shape future issues.

This issue we showcase some great VFR flying in perhaps the most unlikeliest of places... Israel! There exists a very vibrant community of flight simmers in this country and they have created some excellent add-on scenery for their local area. David Wilson-Okamura takes you free flying in Israel this month.

The return of the Freeware Frenzy column has kept smiles on many reader's faces of late, and it is once again becoming a very popular column. Larry Coleman has been scouring the web searching for quality free packages to add to your favorite simulator. Be sure to check out what's on the menu this month in our latest Freeware Frenzy edition.

Peter Stark wraps up his tutorial on DIY Panel Building this month. I am expecting to see lots of new panels showing up in online file libraries from all our readers in coming months! Doug Horton's next article on gaining your own virtual instrument rating, along with Al's Round Robin adventure should provide plenty of hands-on flying this issue as well.

So what are you waiting for? Read on for more great articles, lessons, reviews and tutorials from the world of simulated aviation, brought to you by the team at Computer Pilot Magazine, the resource that provides you with the most flight sim coverage you can find anywhere in print form!

Dean Bielanowski
Editor

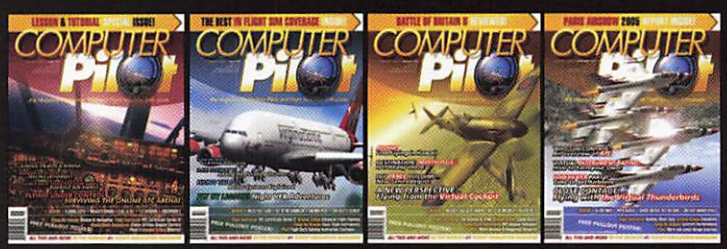
Supplement your reading in Computer Pilot Magazine by visiting the Computer Pilot web site at www.computerpilot.com

As well as features for first time visitors, the web site is designed with our readers in mind.

For subscribers
- Renew your subscriptions on-line
- Notify us of address changes
- Join our electronic mailinglist – SubscriberNews

General services include:
- Direct links to web sites mentioned in our on-line article
- Software downloads including links to patches and demos for every flight sim on the market
- On-line competitions
- Computer Pilot Interactive
- Much more

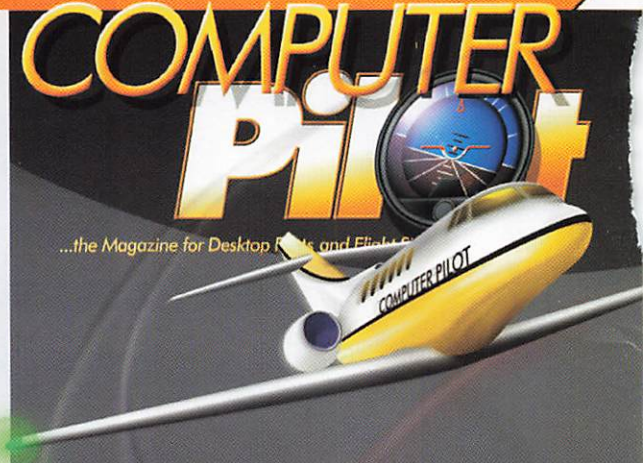
Bookmark our web site and visit it frequently. It will enhance your reading of Computer Pilot Magazine.



http://www.computerpilot.com

V9I10

Computer Pilot Volume 9 Issue 10, October 2005 (ISSN 1324-7336) is published monthly by PC Aviator, inc., 839 Surfside Drive, SC 29575.
Periodicals postage is paid at Myrtle Beach, SC and additional mailing offices.
POSTMASTER: Send address changes to P.O. Box 15907, Surfside Beach, SC 29587.



- **Publisher:** Robert Ferraro
- **Editor:** Dean Bielanowski
- **Layout & Design:** Tony Liatos
- **Contributors In This Issue:** Dean Bielanowski, Dr David Wilson-Okamura, Andrew Jones, Dr John Lattanzio, Roger Curtiss, Chuck Bodeen, Peter Stark, Francois Dumas, Derek Davis, Gene Davis, Doug Horton, Larry Coleman, Rod White, Al Pelletier.
- **Subscription Managers:** Australia: Adrian Lazzarotto USA: Mark Jakubowski
- **Editorial Submissions:** Please address editorial matter to The Editor at editor@computerpilot.com or to the office closest to you listed at the bottom of this page.
- **Advertising Inquiries:** PC Aviator Inc. Phone: 843-232-1160. Email: advertising@computerpilot.com
- **Website:** www.computerpilot.com
- **General E-Mail:** info@computerpilot.com
- **US Distribution:** Ingram Periodicals, International Periodical Distributors, Media Solutions
- **Printed By:** The RL Bryan Company (USA).
- **Disclaimer:** Any information, advice, maps, charts, tables and other information published in this magazine is exclusively for use with PC flight simulations. The publisher does not accept any liability for any accident or incident arising from any information conveyed or implied in this publication.
- **Copyright:** © Copyright 2005 The PC Aviator Pty Ltd Incorporating PC Aviator Inc. All rights reserved. None of the information in this magazine may be reproduced in any form or stored via any electronic means without the express permission of the publisher.
- **Cover Price:** USA.: $7.95. Australia: $9.85*. Canada: $9.95.
- **Subscriptions:**
Computer Pilot is published monthly
• Australian Annual Subscription: AUD$79.95
Phone: 1-800-807-747
• US Annual Subscription: USD$39.95
Phone: 1-800-664-0033
• Other International Subscriptions
Asia/Pacific Region: Ph: +61-3-9532-8258
Rest Of The World: Ph: +1-843-232-1160
or visit www.computerpilot.com

ISSN: 1324-7336
- **Published by:** PC Aviator – The Flight Simulation Company
- **Australian Office:** The PC Aviator Pty Ltd
Suite 6, 219 Balaclava Rd
North Caulfield, Vic, 3161
Ph: 03-9532-8258 Fax: 03-9532-8916
- **U.S. Office:** PC Aviator Inc
839 Surfside Drive
Surfside Beach, SC, 29575
Ph: 843-232-1160 Fax: 843-232-1166

* Recommended Retail Price only

Computer Pilot is an international magazine, proudly published in Australia. Printed in the United States of America.

CONTENTS

6 NEWS AND NEW RELEASES
All the latest news and new releases since our last issue.

REVIEWS
20 Daniel Polli's *FS Passengers 2004*
28 Assorted *X-Plane Scenery*
50 PC Aviator's *Bonanza F33A*
54 Sim-Wing's *Paris* / Fly Tampa's *Midway* scenery

10 FREE FLYING IN ISRAEL

Fresh from the hop about the Hawaiian islands, Dr David heads to Israel to take you on another VFR flying adventure. The Flight simming hobby in Israel is surprisingly well maintained by a group of keen virtual pilots. We think you will love the ride this month!

16 HIGH FLIGHT
Andrew Jones explores the world above the cloud tops as he looks at the considerations of undertaking high altitude flight using a variety of aircraft, and how the pilot can get into trouble, even if still below the maximum service ceiling of their aircraft.

24 WHO'S IN CONTROL? DELIVERY
This is the first in a series of articles on the art of air traffic control (ATC). It is intended as a primer for the aspiring controller but it is also useful for the online pilot to provide an insight into what the controller is doing and how the controller perceives the online world.

33 D.I.Y. PANEL BUILDING PART III
In the final part of this series, Peter Stark shows you the steps to creating panel bitmap image backgrounds, as well as adding and moving gauges, and everything else to get your new panel into a flyable state!

38 INTERNATIONAL FS CONVENTION 2005 REPORT
Francois Dumas reports on this year's annual International Flight Sim Convention in Blackpool, UK. The show was ultimately a success, but was not without its fair share of drama!

46 THE UPS AND DOWNS OF BOB II
Derek Davis presents a tutorial on managing the Battle of Britain II package aircraft, focusing on correct takeoff and landing technique in a variety of warbirds.

60 GROUND SCHOOL: THE PROPELLER
There are certain parts of an aircraft we take for granted... until they fail or cause us problems! The propeller is one of them. Learning all you can about this component will make you a far better and safer pilot. We explore the theory of the propeller this issue.

68 HARDWARE CORNER

This time around we take a look at an innovative cordless desktop system, some of the latest technology in graphics cards featuring water cooling and a funky keyboard that not only looks good, but works well too!

72 ROUND ROBIN ADVENTURES
We are flying for Fedex on the Boeing 727-200 on a round robin trip that will takes us to several locations in Canada. This flight is also a "true" Fedex route!

78 TRAINING FOR AN INSTRUMENT RATING PART II
In this issue, we'll cover the FS2004 instrument lesson on VOR approaches and the solo flight practice of a VOR approach. Doug will also relate some of his experiences in learning two significant instrument rating requirements that are not covered in the FS2004 instrument lessons.

PLUS OUR REGULAR COLUMNS:

42 PULL OUT POSTER
"The PC-9 Parade"

65 INBOX
Your letters to us.

66 FREEWARE FRENZY
More great freeware add-ons reviewed.

707 Professional Boxed Version Out Now!

IF YOU have been waiting for the boxed version of Captain Sim's Boeing 707 to show its face, the wait is now over. The package is being published by Just Flight and should definitely be on the shelves of your favorite flight sim retailer by the time you read this announcement.

"The Boeing 707 made its first commercial transatlantic flight in 1958 and thanks to its spacious passenger accommodation and high speed it soon became a favorite with airlines around the world. Captain Sim, the development team behind the highly successful 727 Professional, has turned their attention to Boeing's landmark airliner and the results are stupendous! The level of detail is massive and authentic features abound. This aviation classic is set to become a firm favorite with the FS2004 traveling public."

The 707 is created in exacting detail, from the high-resolution liveries to the distinctive sounds of the engines. Variants of the 707 include the -320 ADV as well as the -320 in cargo guise. There's also the famous VC-137C known as "Air Force One" - the US President's personal transport - as well as the E-3A AWACS with its massive rotating radar dish above the rear fuselage. 707 Professional has all the features you expect from the development team, with accurate animations and features such as TCE Textures and Configuration Editor and authentic 2D and 3D virtual cockpits.

The package comes with 19 authentic liveries including British Airways, Air France, Lufthansa, BOAC and Qantas. The package retails for around US$44.99, and is definitely worth a look if you would like to add this classic jetliner to your virtual hangar.

MAAM-SIM Offer Updated Aircraft CDs

MID-ATLANTIC Air Museum Simulations are offering new editions of their award-winning classic aircraft CD packages for FS2002 and FS2004 to new product purchasers. The Douglas R4D / DC-3 / C-47 CD is now in its 8th Edition and the North American B-25J 'Briefing Time' CD is in its 5th Edition. From its birth in 1999, MAAM-SIM, then known as "The R4D Team", has provided numerous free enhancements for download by its customers. These have included not only different liveries, but complete new aircraft models, genuine pilot's and technical manuals, repaint kits, panel and gauge options and upgrades, original scenery, and more.

It has always been the policy of MAAM-SIM to include patches, upgrades, and selected enhancements on our CD's by means of new editions...Because every bit of the process is performed by unpaid museum volunteer members, costs are kept to a minimum and donations to the aircraft restoration fund are maximized. But a side benefit is that the team can constantly upgrade the product.

For instance, soon after a bare metal version of 'Briefing Time' was released as a free enhancement a new edition of the CD was produced including the shiny ship. Likewise, when the solid-nose, 'Falcon' gunship model of the B-25J was released, a new edition was burned to include it. The 5th Edition B-25J 'Briefing Time' CD now includes the Panel Upgrades for both FS2002 and FS2004. When we added the rare and little-known XC-47C Amphibian to the hangar as a free add-on for R4D CD owners, it appeared on the next edition of the CD... Now, the 8th Edition CD includes the recently released D-Day C-47 'Skytrain' and Dakota Mk III Expansion Pack.

The R4D CD can be yours for US$30 and the B-25J CD for US$25. Both can be ordered direct through the MAAM-SIM website at **http://www.maam.org/maam_sim.html** or at selected flight sim retailers (check which version they are selling first however).

Just Planes Expands Range

THE CREW over at Just Planes, producers of a large range of real world flight deck and airport DVDs are constantly expanding their product range. Among the new releases is an airport DVD covering perhaps one of the most famous airports in the world – Princess Juliana Intl – on the island of St. Maarten, a spotter's dream airport.

This 2 hour DVD contains some footage filmed in 2001 and released on video back then as well as all new footage filmed in 2005. Additionally, included are approaches filmed in the cockpit of 3 airlines for a pilot's eye view of the runway and touchdown.

Air Arabia A320-200 takes you on 10 flights from Sharjah to destinations in Egypt, Saudi Arabia, Syria and Yemen. You're in the cockpit for takeoffs and landings at some very interesting destinations in the Middle East including cockpit presentations, a flight in the cabin, and presentations by the CEO, Marketing and Flight Operations departments, as well as some spectacular views of the city of Sharjah.

If you are looking for a title that shows many different aircraft, then the *Air Caraibes* DVD may be just what you are looking for… The DVD starts with a roundtrip trans-atlantic flight on the Airbus A330 from Fort de France to Paris' Orly Airport. You then fly the Embraer 145 to Haiti, the Dominican Republic and St Maarten's famous airport. This is followed by a spectacular hop on the Cessna Caravan from St Maarten to St Barth and the Dornier from St Barth to Point A Pitre. Scenic flights around Guadeloupe onboard a Cessna, and an ATR flight to St Martin's French side airport conclude this mostly Caribbean-themed title. Each of these titles retails for around US$25 and are available from the Just Planes website at **www.justplanes.com**. PC Aviator at **www.pcaviator.com** also stock a large range of Just Planes titles.

"Butcher Bird" Update Now Available

SHOCKWAVE PRODUCTIONS has released an official update to their latest Wings of Power aircraft, the Focke Wulf 190 "Butcher Bird" for Microsoft Flight Simulator 2004. In a recent forum thread announcing the patch, Shockwave wished to thank the community for all their support and interest in their latest Wings of Power aircraft. Readers may recall our review coverage of the "Wings of Power" aircraft collection title we reviewed some time ago. It was given a glowing report and is still one of the best combat add-ons for FS2004 to be released to date. The "Butcher Bird" aircraft (sold separately) continues the tradition of Shockwave producing some of the best add-on aircraft to date for the Microsoft platform. The Focke Wulf 190 "Butcher Bird" v.1.1 update includes the following fixes and enhancements:

- External model fixes / improvements.
- Sound level calibrated at all altitudes.
- Control ranges and prop diameters were corrected in some models.
- Flight models were adjusted as required to retain accuracy.
- Removed aileron and rudder trim adjustability and removed references to these from the checklists.
- Adjusted landing gear drag to account for gear door angle to relative wind.
- Checklists have been revised to reflect any changes.
- Enhanced ground dust effects.
- Canopy close sound better synchronized.
- Fuel selector fixed.

The link to download the free update for owners of the FW190, plus free downloads of some great movies of the aircraft in action can be found in the "Butcher Bird" forum at **http://www.shockwaveproductions.com/forum/**

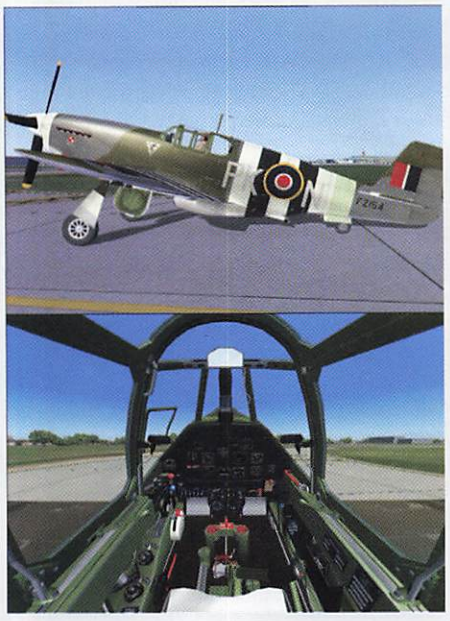
Legacy of the Sky

SKYUNLIMITED, developers of combat aircraft add-ons for FS2004 and CFS3 have recently announced the release of their latest product - ***Legacy of the Sky: Mustang Fighters of WWII vol.1***

This package is flyable in both FS2004 and CFS3 and features over 20 Mustang models and almost 60 unique paint schemes (P-51 through P-51C). The main features of the package are listed as follows:

- 21 Highly-detailed exterior models by Jesse Lambert in virtually every configuration of the aircraft.
- 58 stunning paint schemes by Alessandro Biagi.
- Flight dynamics built with the latest in "airfile" design technology by the acclaimed Jerry Beckwith.
- Two highly-detailed panels by Lobo da Silvia.
- Beautifully rendered virtual cockpits by Baldwin de Tourton and Jesse Lambert.
- Custom gauges with backlighting by the acclaimed Bill Leaming.
- Custom gun effects for FS2004 by Rob Barendregt and Douglas Dawson.
- Custom FS2004 effects with wingtip vortices and vapor contrails.
- Detailed Allison and Merlin engines.
- Custom sound sets created by 100% authentic recordings of both the Merlin and Allison engines that powered these aircraft, with unique recordings inside and outside of the aircraft.
- Documents containing details on this aircraft as well as an appropriate checklist.

The package is available now by download (192Mb) for US$27.99 or on CD for US$37.99 from the official SkyUnlimited website at **http://www.skyunlimited.net/**



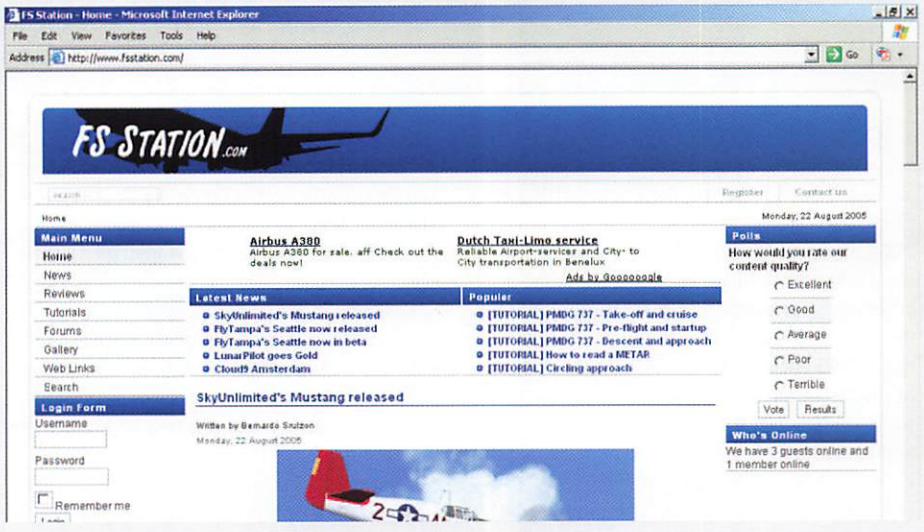
FSStation Opens Doors

ONLINE SIMMERS now have another flight simulator website to visit…
FS Station -**www.fsstation.com** - is a new simulator website promising to serve the needs of the growing FS community. According to webmaster and site owner, Bernardo Srulzon;
"Our biggest differential is unique, quality content: we currently have many quality articles and tutorials, but as the site is completely dynamic, users can also submit their own content, keeping it always up-to-date. It is very well organized and easy to navigate, something that is lacking on many flight simulator websites these days. At this present date we offer six sections:

- News - where you are kept up-to-date with latest flight simulator news.
- Tutorials - where you can read detailed articles and learn different procedures every day.
- Reviews - where informative and helpful reviews of new products are posted.
- Gallery - where you can view, rate and comment on images, or even submit your own.
- Forums - where you can give suggestions about the site, ask questions and interact in real time with staff and other users.
- Weblinks - where useful links are posted.

All of the sections are updated daily. We have everything to be one of the best sites in the area!"

As an introduction to the website, FS Station is conducting a screenshot contest (which may be regular events) where the winner can earn some great prizes, including a subscription/extension to Computer Pilot Magazine. So head on over and check out the new site if you are looking for new places in cyberspace to fill your flight sim needs.



Enter the world of flight simulation!

aerosoft™

Aerosoft branch opening in Canada!

September 2005 sees our opening of our branch in Canada!
All North American customers can now purchase our products directly from our base in Ontario.

Scenery Manhattan
Impressions of a city!

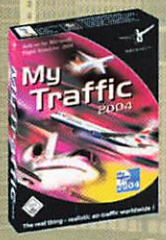
A never before seen amount of detail in this spectacular city scenery is right here waiting to be discovered by the virtual pilot! Scenery Manhattan covers the island of New York Manhattan in unprecedented detail with all its buildings, details and three of the most well known Heliports. The famous skyscrapers, the Central Park, theatres and monuments make it an ideal scenery for a great sightseeing tour.

Our opening offer: 25 % discount! Was CAN $ 39.99, now **CAN $ 29.99!**

PMDG 737 NG 600/700
A highly realistic reproduction of Boeing's New Generation Glass Cockpit Aircraft series!

This product is a full airliner simulation product for Microsoft Flight Simulator and includes a full avionics suite, mechanical and automation systems represented in Boeing's 737NG production aircraft, a member of the largest selling aircraft family in aviation history. The 737NG allows you to perform realistic airliner operations as well as enjoy the beauty of a modern airliner.

Our opening offer: 25 % discount! Was CAN $ 59.99, now **CAN $ 44.99!**



My Traffic 2004 2.1
As real as it gets!

MyTraffic 2004 enhances Microsoft Flight Simulator 2004 with realistic AI Traffic. MyTraffic 2004 includes and has the capability to generate airliner, general aviation and military traffic in the most realistic manner ever experienced in FS2004. Whatever genre of flights you enjoy with your FS2004, MyTraffic 2004 will provide the ideal environment.

Our opening offer: 25 % discount! Was CAN $ 49.99, now **CAN $ 37.50!**

Aerosoft GmbH
Airport Paderborn/Lippstadt,
Lindberghring 12, D-33142 Bueren
Phone: +49 2955 7603-10, Fax: -33
E-mail: info@aerosoft.de

Aerosoft North America Ltd.
33855 Saintsbury Line
Lucan, Ontario N0M 2J0, Canada
Phone: (519) 227-13 79, Fax: -15 95
E-mail: canada@aerosoft.com

www.aerosoft.com

Visit our download-shop:
www.aerosoft-shop.com

Free Flying in ISRAEL

BY DR. DAVID WILSON-OKAMURA

This article is the fifth in a series about VFR in different parts of the world. Our goal, as we've said before, is not to map every crest and crevice, but to formulate for each region some rules of thumb that can be internalized on the ground and applied "on the fly." This month, we begin to look outside of the United States and explore the varied sights of the "Holy Land".

Controlled VFR

I am going to skip the usual preamble about the birthplace of three world religions - that's what history books are for. And the touristy chitchat - this too I shall forego. Also, I am not going to burden you with my opinions on Middle East politics.

However, we do need to say a few words about the effect that politics has on aviation. It is widely believed that airport security in Israel is the tightest in the world; to date, there has never been a hijacked plane that originated from an Israeli airport (though several have landed there). Israel is cautious, and so are its neighbors. Lebanon, to the north, will not accept flights to or from Israel; nor can planes registered in Israel depart from a Lebanese airport. Syria, to the east, not only refuses flights that originate in Israel, but also overflights that cross Israel enroute from somewhere else - the way to get around this is to make a stop in Cyprus.

Within Israel, the airspace is compact. Most of it is "owned" by the air force, and what's left is tightly regulated. In particular, there is not the same distinction between IFR and VFR as obtains elsewhere. VFR still exists, but it is all CVFR. The C stands for controlled, because all flights - including VFR - are closely supervised by air traffic control (ATC), from engine startup to engine shutdown. Once airborne, VFR flights follow one of several predefined routes. These routes are published by the Civil Aviation Authority and admit of no deviation.

The charts that define routes for CVFR are published exclusively in Hebrew. This makes sense, since ATC for domestic flights is also in Hebrew. The reality is, if you don't speak Hebrew you can't fly in Israeli airspace. To be more precise, you can fly in, but you can't fly around.

This might have been the end of our story - since I don't know Hebrew - if not for the helpful members of VATIL - **vatil.org**, the Israeli division of VATSIM. Most of the conversation there is in Hebrew, but the controllers will cheerfully use English whenever a non-Hebrew speaker comes online. If you have questions, I suggest posting on VATSIM's "Israel" forum at **vatsim.net**; or, if you read Hebrew, there are more forums on the VATIL website. The former is where I learned to interpret the various symbols for CVFR, and what I learned there I pass on to you. Yellow circles represent airports. Yellow arrows with numbers inside show the required altitude for the direction of travel indicated by the arrow. Yellow triangles signify waypoints and black triangles signify mandatory reporting points. The distance between waypoints is marked with an un-circled numeral; circled numerals, which appear more rarely, indicate notes on the side.

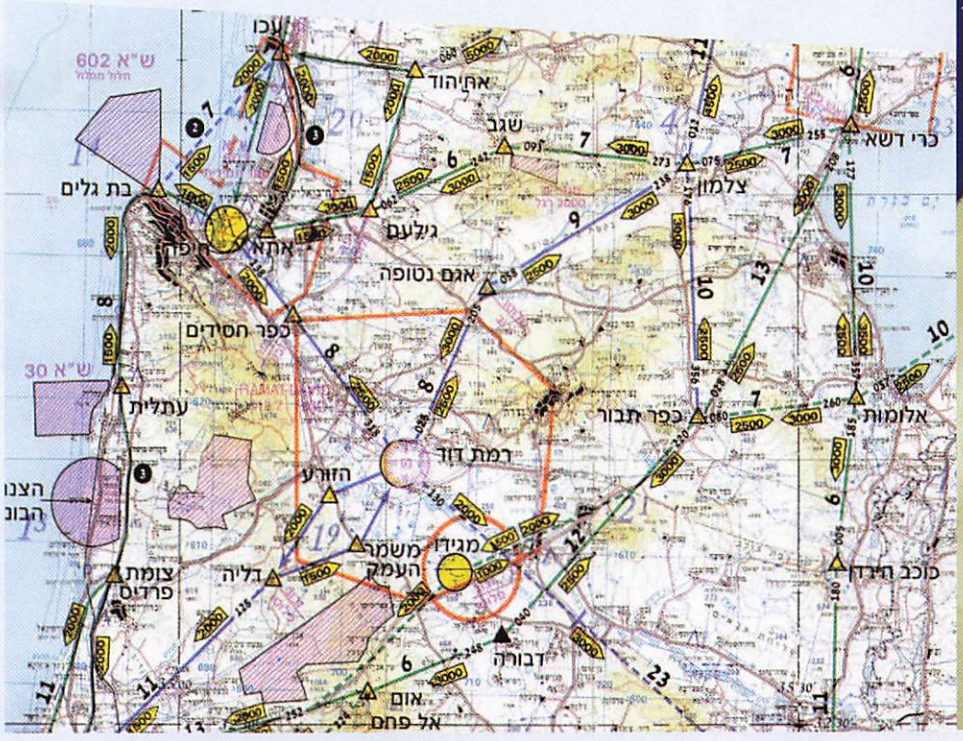
With this information, you can interpret the charts - except for names, which are still in Hebrew. You can compensate somewhat by downloading some free tools. First, Hagay Yahav has created a file on the VATIL website called "CVFR Fixes Israel," which includes screenshots of all CVFR waypoints. While you are there, get Ran Finkel's "Israel Charts Kneeboard." The text is mostly in Hebrew but the charts and pictures are still useful. My own modest contributions are available from the AVSIM file library - **http://library.avsim.net**. One of these, israelcvfrwaypoints.zip, puts all of the CVFR waypoints in your GPS, using the Roman alphabet instead of the Hebrew. Another file, israelmm.zip, is for use with the free Moving Map program by Rana Hossain and plots your aircraft's location on the CVFR chart. For good measure, I have also uploaded some IFR charts, israelifrcharts.zip, which are a convenient reference for distances and navaid frequencies.

Or, if all of this sounds too complicated, you can forget about CVFR altogether and fly the old-fashioned way. No, I'm not advocating anarchy. Remember that simulators are good for at least two things. They can be used to practice real-world techniques and procedures, and they can also be used to model unreal events in a realistic way. In the real world, Chicago's famous Meigs Field is now closed and converted into a park. Should we stop flying there in the sim? The Concorde is not in service, either; should sim pilots stop flying models of it? The situation in Israel is similar. Because of the political situation, free-ranging VFR is no longer possible. But in the simulator we still have a choice: we can model the constraints imposed by contemporary politics, or we can simulate around them.

Scenery Downloads

Whatever you choose, you will want to download some freeware scenery. The best guide is Heather Sherman's scenery **http://fly-heather.avsim.net/index_Gallery.html**, which has links to most, if not all, of the available downloads for any region of the world, including Israel. I will just mention some of the highlights.

First, install the terrain mesh; this will dramatically enhance mountains and valleys. Second, get "Israel, the Holy Land V2" by Seev Kahn; this will improve roads, coastlines, cities and vegetation in northern Israel with minimal impact on frame rates. Ido Rosenthal's "Negev Desert Landclass" will do the same for the south.

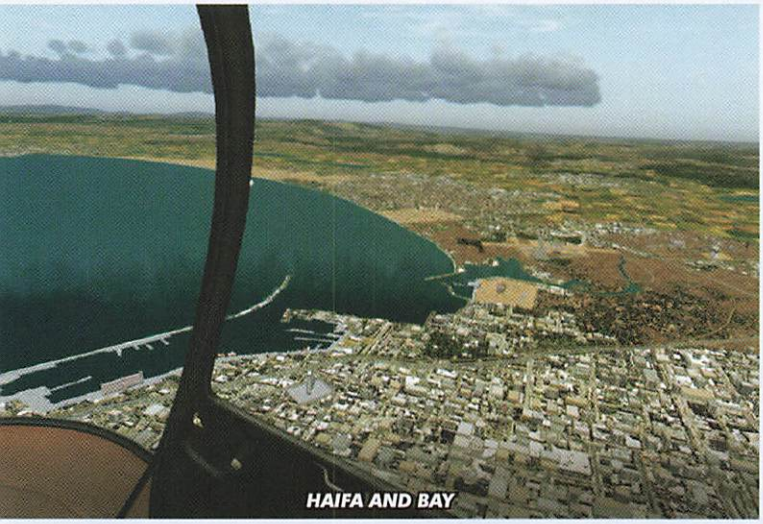


READ A CVFR CHART

STRIPPED DOWN MAP OF ISRAEL

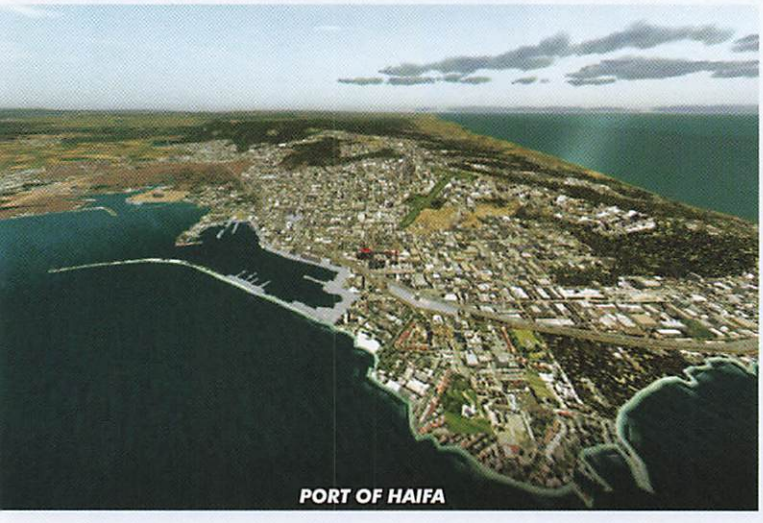
COLORFUL EILAT

EILAT CITY AND AIRPORT, WITH PHOTOREAL LANDSCAPE



HAIFA AND BAY

OVER THE HILL INTO HAIFA

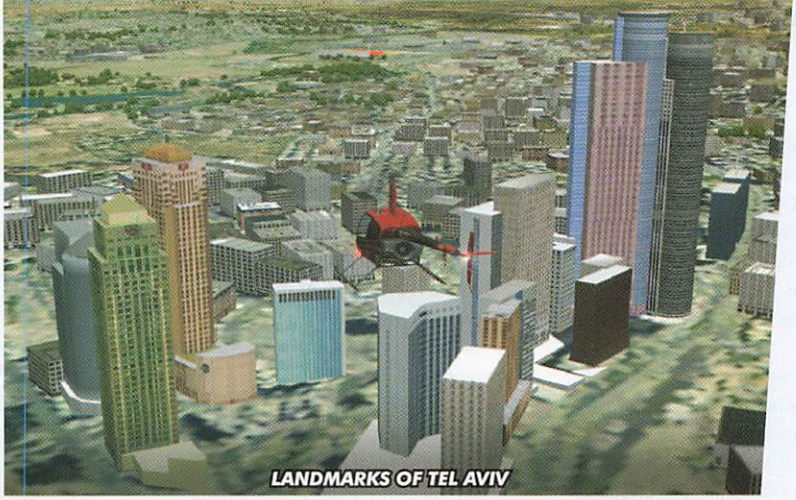


PORT OF HAIFA

HERZLIA, ISRAEL'S BUSIEST GA AIRPORT

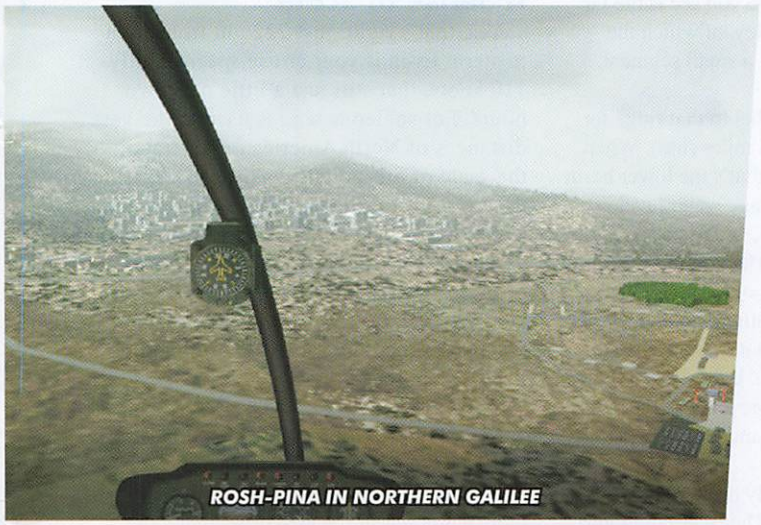
TEL AVIV AS SEEN FROM ABOVE SDE DOV

SDE DOV WITH TEL AVIV BEHIND



LANDMARKS OF TEL AVIV

The next step is to install some cities. Look for "Eilat Airport and City" by David Rosenfeld, "Tel Aviv VFR Photoreal" by Alexander Lawrence, "Jerusalem" by Seev Kahn, and "Haifa VFR 1.0 - Northern Israel" also by Lawrence. These are all big projects, with scores and scores of buildings rendered lovingly in GMAX.
I would like to say, "The screenshots speak for themselves," but they don't: the scale is too large and the craftsmanship too fine. To appreciate them, you really need a helicopter. If you have failed at helos in the past, try again. Also, in Jerusalem, turn off crash detection when flying low; the scenery uses some "invisible" buildings which are, in fact, quite solid.

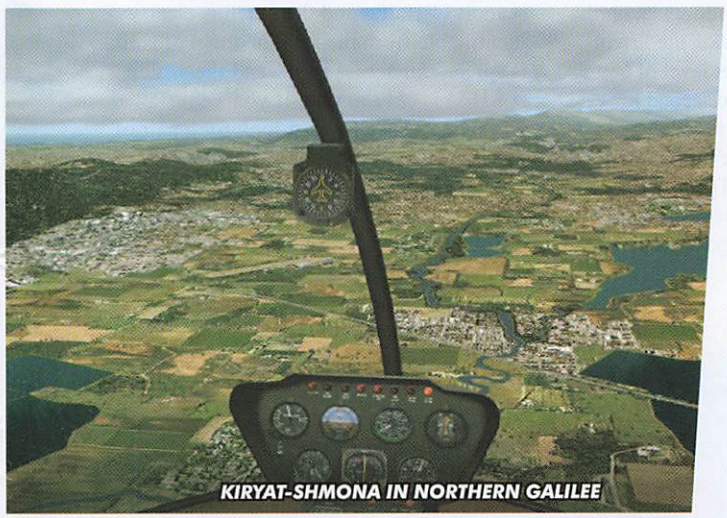


ROSH-PINA IN NORTHERN GALILEE

Finally, you will want to download some airports. Israel has about fifty of them, 28 of which are modeled in Flight Simulator. The busiest is Ben-Gurion (LLBG), east of Tel Aviv; Seev Kahn's new version is detailed, accurate, and includes the new Terminal 3. There is a smaller airport, Sde Dov (LLSD), which is just north of the city and has its main runway right next to the beach. The southern end of the runway is well marked by a tall factory smokestack and is easy to locate. The whole complex - airport, factory, parking lot, streets with moving cars - has been lovingly built up by Nir Behar; the scenery is now in its third version. Also north of Tel Aviv is Herzlia (LLHZ), which is the country's busiest airport for general aviation. David Rosenfeld has modeled Herzlia more than once and his latest version, made in collaboration with Nir Behar, also includes the area around the airport. There is only one runway, but the textures everywhere are photoreal and there are numerous props - people, signage, outdoor tables, and parked aircraft - that give the field a lived-in look.

Humps and Valleys

If you've read my previous articles, you know what I'm about to say: get a map. The U.S. Defense Mapping Agency publishes a series of Operational Navigation Charts (ONCs) that cost about US$5 each and show elevations, navaids, airports, and terrain. ONC G-4 covers most of Israel except the southern tip (which is part of H-5). If you want more detail, Tactical Pilotage Charts (TPCs) cost about US$7; for Israel, you'll need two: H-5A and G-4D. I get mine at Sporty's Pilot Shop - **http://sportys.com**
Or go to the public library and photocopy the relevant page from as big an atlas as you can find; that works too.



KIRYAT-SHMONA IN NORTHERN GALILEE

Got a map now? My advice is to think big: meaning, look for terrain or water features that can be recognized from miles and miles away and thousands of feet. Israel has three of them, counting the Mediterranean Sea on its western shore. The other two are on its eastern border with Jordan and Syria. I'm referring, of course, to the Sea of Galilee (Yam Kinneret) and the Dead Sea.

Connecting these two lakes - "sea" here being little more than a courtesy title - is the River Jordan, which figures in so many biblical stories. Now, the River Jordan runs, as rivers will, through a valley. In this case, however, the valley is much longer than the river. It is actually part of the Great Rift Valley which begins in Syria, continues the whole length of Israel down to the Gulf of Aqaba, and keeps going for 3,000 miles until it reaches Mozambique in southern Africa. Even as I write, the Rift is widening, and in umpteen million years the ocean will pour in from the Red Sea and almost the whole eastern coast of Africa will break off and form a separate continent. But that is a long way off. In the meantime this rift, and the hills it pushed up, are what define how Israel looks from an airplane.

NEW AND OLD JERUSALEM

To see what I mean, put aside your good, detailed map for a moment and look at the stripped down map I've made for this article. Now let's see if we can't make it even simpler. Imagine Israel as a strip of paper with a point at the bottom and a hump in the middle. That hump is the range of hills that forms Israel's spine. Admittedly, the pointy end is flatter - that's the Negev Desert. Notice how it also gets flat on the left (I mean, western) side of the hump - that's the coastal plain. And where it gets flat on the eastern side is the valley we've been talking about. Of course, a valley has two sides, and if we kept going east, there would be another ridge. By that time, though, we'd already be in Jordan or Syria and, for reasons which I have already alluded to, we aren't supposed to do that.

A strip of paper with a hump in the middle and a valley on the side: I won't say that is all ye need to know, but it's enough, mostly, for VFR. It's less helpful over the desert because the terrain there is flatter and you can't see water except in the very south. But the northern half of the country is so skinny that, unless the weather is bad, you can almost always make out something from the air: the Mediterranean Sea, one of the two lakes, or the valley that extends between, above, and below them.

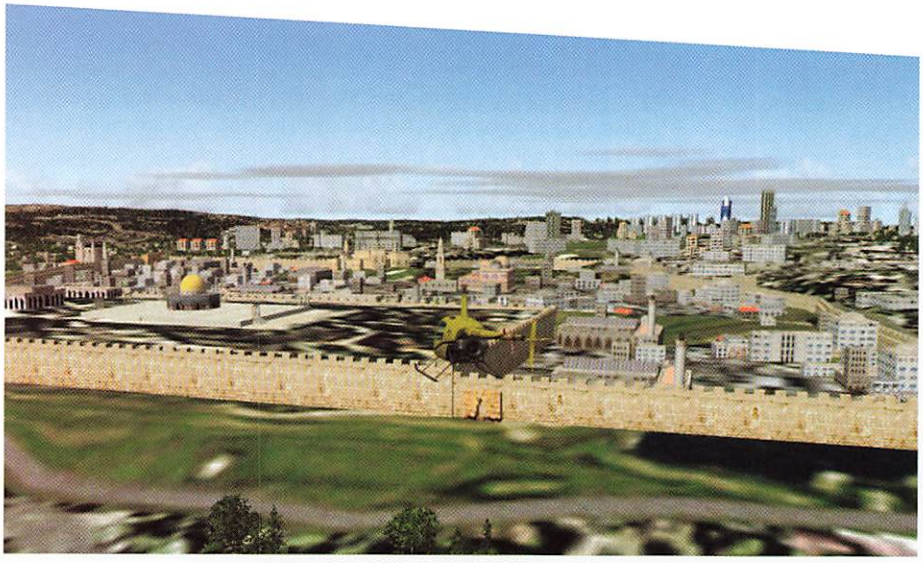
From Concept to Images

So much for the concept of Israel's topography. Now let's get in the air and connect the concept with some images. We'll begin at the southern tip, in Eilat (LLET). If you haven't already installed the scenery I've recommended, do that now. Eilat, or "Sun City" as it's called, is a resort destination that brings in tourists from the Middle East and Europe. David Rosenfeld has created numerous GMAX models of hotels and attractions, and has set the whole thing on top of a photoreal landscape. There's no fireworks show at night, but in other respects it challenges Las Vegas for visual interest. You'll want to come back here in a helicopter.

From Eilat there's nowhere to go but north. I'll leave it up to you whether you follow the CVFR route. As you gain altitude, though, notice the dark ridge off your right wing. That's Jordan you're looking at - the country, not the river - and the ridge you see is the far side of that Great Rift Valley, of which the Jordan river valley is only a small segment.

We're going to fly parallel to that ridge for approximately 90 nautical miles (nm). When you can see water ahead, that's the lower basin of the Dead Sea. The average water level is 1,280 feet below sea level, which makes it the lowest point on the surface of the earth. The upper basin is longer, older, and it has an airstrip (LLMZ) at the southern end where we can put down for a few hours. Nearby is the ancient fortress of Masada, but there's no trace of it here in the sim, just the glare of the sun and the grandeur of cliffs and lake.

We take off again and fly north until we reach the top of the lake. The river going into the lake is the Jordan. We'll follow that north until we reach another great lake, the Sea of Galilee. With an average water level of 689 feet below sea level, this is the second lowest point on earth. The lake is surrounded by hills, and on the far side of the northern hills is Rosh-Pina airport (LLIB). This is a good base from which to explore the Galilee (as this region is known), but we are going to press on a little farther.



JERUSALEM IN THE MORNING

The valley narrows here and the mountains get taller. The tallest of them, Mt. Hermon (9,232 ft.), still has snow on it, even in July. To the east, there is the volcanic plateau known as the Golan or Syrian Heights. This is disputed territory. What's not disputed is that Kiryat-Shmona (LLKS), in the upper west corner of the valley, is the northernmost airport in Israel. From here back to Eilat is all of 222 nm, and we traveled it all by following the valley.

A Sense of Scale

Yes, that's right: just 222 nm from stem to stern. Even if your cruise speed is only 110 knots, that still just a little over two hours. For someone who is used to the vast distances of North America or Australia, the scale of this country takes some getting used to. But for the VFR pilot, that is part of its charm. There's no need to worry about getting from one place to another, because you are never very far from anywhere. In consequence, the airplane becomes a medium for exploration, more than transportation.

Let's explore some more. This time we'll follow the coast, starting at Tel Aviv and traveling north. On the map, you'll see there's a notch in the coastline: that's the seaport of Haifa, and the notch is clearly identifiable from the air. The town of Haifa is spread out across a hill, and the airport (LLHA) is easy to find. If you've installed Lawrence's scenery, just look for a pair of reactor towers - the runway leads right up to them.

Taking off again, we can follow the hills south again, into the "hump" or "spine" of Israel. If you're high enough, you'll be able to see the Sea of Galilee on your left. In any case, turn south when you reach that useful, useful landmark, the Jordan river valley. Start looking now for the Dead Sea. When you get to its northern end, look right: that's Jerusalem, gleaming up in the hills. If you've installed Seev Kahn's scenery, the first you'll see of it are three towers on a ridgeline. The modern-looking one is Hebrew University; the other two are churches on the Mount of Olives.

If you've got a helicopter, it's easy to spend hours here admiring the various buildings, old and new. But where to land? Jerusalem airport (LLJR) is closed in the real world, which is no reason not to use it here. Taking off again from Runway 12, we are launched out over the Dead Sea. It's not "as real as it gets," but it is spectacular. ✈

THE LEGEND RETURNS

EXPERIENCE THE MOST REALISTIC, CHALLENGING, AND IMMERSIVE AIR-COMBAT SIMULATION YOU CAN GET!

FALCON 4.0 ALLIED FORCE

THE NEXT GENERATION IS FINALLY HERE!
FALCON 4.0: ALLIED FORCE IS THE SUCCESSOR TO THE BEST-SELLING *FALCON 4.0*. BE AN INTEGRAL PART OF NATO FORCES WITH TENS OF THOUSANDS OF OTHER UNITS – AIR, LAND AND SEA. WITH THE MOST ADVANCED DYNAMIC CAMPAIGN ENGINE EVER MADE FOR YOUR COMPUTER, NO TWO MISSIONS EVER FLY THE SAME.

PHOTO-REALISTIC COCKPITS COME WITH FULLY INTERACTIVE INSTRUMENTATION. ONBOARD RADAR, WEAPONS, SELF-DEFENSE, NAVIGATION AND AIRCRAFT CONTROL DUPLICATE THE REAL THING WITH ASTONISHING ACCURACY.

LEARN TO PLAN, REACT, AND COPE WITH AN EVER CHANGING BATTLEFIELD WHERE EVERY ENTITY OBEYS "CAUSE AND EFFECT."

EXPERIENCE THE THRILL OF RETURNING TO YOUR HOME BASE WITH YOUR FRIENDS AFTER AN INTENSE COMBAT MISSION.

"FALCON 4.0: ALLIED FORCE" IS A MAJOR ADVANCEMENT OVER "FALCON 4.0"

DOGFIGHT AND FLY NAP-OF-EARTH MISSIONS THROUGH DETAILED TERRAIN WITH MOUNTAINS AND VALLEYS.

DROP AND LAUNCH A VAST ARRAY OF WEAPONS SUCH AS THE AIM-120 AMRAAM, AIM-9 SIDEWINDER, AGM-65 MAVERICK, AGM-88 HARM, AND MK-83

WWW.GRAPHSIM.COM

TEEN T Mild Language Violence
ESRB CONTENT RATING www.esrb.org

PC CD-ROM SOFTWARE

LEAD PURSUIT

graphsim entertainment

High Flight

BY ANDREW D. JONES

October 14, 2004, Jefferson City Missouri:

Capt. Jesse Rhodes and First Officer Peter Cesarz were assigned to ferry a Bombardier CRJ-200 from Little Rock, Arkansas to Minneapolis, Minnesota for Pinnacle Airlines. Flying with neither passengers nor cargo, the two pilots were impressed with the lightly loaded plane's improved performance characteristics. As they proceeded enroute they decided to take the plane up to its service ceiling of 41,000 feet. It was apparently a spontaneous decision, and a substantial deviation from their original flight plan. Moreover, they were flying at night, which would increase the danger were an emergency landing to be required. However, they were not in violation of regulations, and all was done in coordination with ATC.

After leveling off at Flight Level 410, the pilots discovered that the aircraft was steadily loosing airspeed. One of the pilots even commented on the nose-high attitude that the autopilot was holding in order to maintain the altitude. Even without passengers or cargo, the plane may have been carrying too much weight (fuel, supplies, or other on-board items) to maintain steady flight at that altitude. A few minutes later, they requested a lower altitude from ATC, but before receiving a response, the stick shaker went off. Within seconds, several alarms were sounding in the cockpit. The CRJ had stalled, the autopilot had disconnected, and both engines had failed (probably due to flameout or compressor stalls). During the ensuing descent, the crew made several unsuccessful attempts to restart the engines. This involved steeply diving the aircraft in an effort to start the engines with ram air. With guidance from ATC, they then attempted an approach to Jefferson City Airport (KJEF). Unfortunately, by this time they had already lost too much altitude to reach it. As it was dark, there was little chance of finding a clear field or road on which to land. They crashed into a residential neighborhood eight miles south of the airport. Both pilots lost their lives.

At the time of writing, an NTSB investigation of this crash is still in progress, and many crucial facts remain unknown. Much speculation has been made in the press regarding the Cockpit Voice Recorder transcript of the last half-hour of

the flight, which at the very least creates the appearance of recklessness on the part of the crew. Never forget, however, that when studying any airplane crash, reliance upon the CVR alone leaves an incomplete and often deceptive impression of the event. And so we will not jump to conclusions here.

In any case, there can be little doubt that the aircraft's unusually high altitude was a contributing factor to the accident. This event inspired me to look deeper into the problems posed by flying at high altitudes using MSFS, and I thought the readers of *Computer Pilot* might also find the subject interesting.

As a rule of thumb, pilots generally prefer to have as much altitude as they can get. However, there are limits to this axiom. Every aircraft has a service ceiling, an altitude above which it is not certified to be flown. Moreover, even altitudes lower than the service ceiling may be inappropriate depending upon how the plane is loaded, and also upon the experience of the crew. Flying near the upper edges of an aircraft's altitude limits poses problems and risks not normally encountered at lower heights. A pilot with little experience in dealing with these factors, even if he has a general understanding of them, puts himself and his craft at a greater risk of something going wrong.

Let's start with the basics. As one climbs higher in the atmosphere, several things happen that affect both pilots and airplanes. At the root of most of them, is the same steady drop in air pressure that makes a barometric altimeter work. By definition, the dropping pressure means that the air is getting thinner; the individual molecules of the gasses that make up our atmosphere are spaced farther apart with each foot higher we climb. This means that there is less air for you to breathe, less air to feed your engines (be they turbine or piston), and less air to support your wings. Additionally, the temperature also drops with altitude as well, which can lead to other problems.

Firstly, if your cabin is unpressurized, pilots and passengers will require supplemental oxygen. Individual humans vary in terms of their tolerance for high altitudes, but all will experience hypoxia and eventual suffocation if we climb high enough.

This effect is made more severe because of the speed at which an airplane climbs. Consider that mountaineers have successfully climbed to the peak of Mt. Everest (29,000 feet) without using supplemental oxygen at all. However, not only were these individuals in very good physical shape, they also had the major advantage of ascending to this great height over the course of many days, instead of the mere minutes required for a jet airliner to climb this high. Legally, at least in the United States, on-board oxygen is required at altitudes over 12,000 feet.

By the same token, a plane's engines are also limited by altitude. Unless you are using rockets, nearly any engine must work harder to produce the same amount of thrust at a higher altitude. Piston engines are the first to be affected, and you have probably noticed even on the default Cessna, that you must begin adjusting the fuel mixture at just a few thousand feet of altitude in order to maintain power. To fly much higher, superchargers are required. These were common among many of the piston-powered aircraft of the WWII era.

Jet engines are capable of operating much higher, and even become more fuel-efficient at higher flight levels. Nevertheless, when you get up above 40,000 feet or so, they begin to face their limitations as well. At these altitudes, jet engines can still operate, but they become less efficient and more vulnerable to malfunction. For this reason, rapid or radical changes in attitude should be avoided, since this could interrupt the flow of air into the engines causing a flameout.

A further challenge is that the thinner air at upper altitudes is less effective at supporting an aircraft's wings. The stall speed of the aircraft gradually becomes higher, meaning that you must fly faster in order to stay aloft. Even measuring airspeed itself becomes problematic, since there is less air out there to enter the pitot tube. The air is also very cold which also throws off readings. Thus, while airspeed is reasonably constant at lower altitudes, it becomes an unreliable measure as you get higher up. Therefore, at an agreed upon altitude, called transition altitude,

pilots begin measuring speed in relation to the speed of sound. Speaking of the speed of sound, as the air gets thinner the speed of sound also changes. With fewer air molecules, sound travels more slowly and so the speed of sound drops. Unless your aircraft is designed for supersonic flight, one must be very careful not to reach or exceed the speed of sound as you climb higher. Doing so will likely cause severe structural damage to the aircraft.

Coffin Corner

This brings us to one of the greatest dangers for aircraft flying at high altitude. On the one hand, the aircraft's stall speed, the minimum speed at which the wings can produce lift, is constantly rising. On the other hand, the speed of sound, which the aircraft must not reach or exceed, is constantly dropping. It becomes obvious that if the plane continues to climb it will soon reach a point at which these two speeds will intersect. This point is commonly referred to as "coffin corner," and once you reach it, you are essentially trapped. You cannot slow down and you cannot speed up without endangering the aircraft. Consequently, you also can neither climb nor descend since either action will affect your speed. The only practical solution is to slow down, allowing the aircraft to stall, and then to hope you can safely recover.

As demonstrated by the CRJ incident, recovery is not guaranteed. Stalling at this altitude may easily force the aircraft into an attitude that momentarily cuts off the airflow into the engine intakes resulting in a flameout. By the same token, if the pilot responds to the stall by firewalling the engine, he can over-accelerate the engine causing a compressor stall, a condition in which the engine surges out of control and quickly overheats. Restarting the engines in the air is tricky at best, and can be quite problematic under some circumstances. If the engine was severely overheated due to a compressor stall, the engine core can become locked in place. This is one of the leading theories behind what may have happened in the incident we have been discussing here.

Practical flight simming in the upper FLs

In the real world, flight levels near the service ceiling are generally avoided by airliners except when necessary. In fact, many typical long range flights are so heavily loaded that they struggle to even reach cruising altitudes in the mid-30s, much climb all the way the service ceiling. In such cases, they use a carefully planned step-climb to burn off fuel at lower flight levels, before climbing up to the final cruise altitude later on.

The simulator, of course, allows us the chance to be test pilots, and to freely experiment with the possibilities. Keep in mind, however, that *FS2004* is not a perfect representation of the real world and also imposes its own unique limitations. Moreover, accurate performance at high altitudes, near the speed of sound is probably not a priority for many FS developers. So don't expect to encounter rare phenomena like core-lock, or even high-altitude flameouts, unless you read that a product is specifically designed to do this.

Nevertheless there is still much to be learned. Start out with the passenger jet of your choice, preferably one of the higher quality 3rd party models and take the time to research the plane's performance limitations. In particular, make note of the service ceiling and the do not exceed speed, $V_{mo,}$ for that altitude. Next, make sure that the aircraft is lightly loaded. Remove all passengers and cargo, and only take enough fuel for an hour or two of flight, with an appropriate reserve. Finally, be sure that you are well familiar with the aircraft you have chosen. This is no time to be figuring out the autopilot or FMC on the fly.

As you take off and start your initial climb, you will find that you can achieve impressive climb rates due to your light load. Go ahead and take advantage of this if you like, and see what the plane can do. It will just get you where you are going faster. However, by the time you pass FL 300, you should bring things back to something a bit more reasonable. By this time, you will be well past your transition height and should be reading your speed in reference to Mach 1. If your aircraft has a multi-mode autoflight system, I would recommend using it, since it allows for smoother operation and gives you more time to watch the instruments and to think about what is going on. Be careful however, as it is easy to get yourself in trouble if you allow the autopilot to exceed the plane's capabilities. As you get higher, you should use progressively lower vertical speeds, diverting more of your energy into holding airspeed.

Most airliners have service ceilings in the low 40s. If you have unloaded the aircraft properly, the plane should be able to safely sustain flight at that level. Since this is a simulator, however, we may go beyond the service ceiling to test the limits of the plane just for fun. Keep in mind that you are entering unknown territory. Neither the simulator nor the aircraft are designed for this, and so the results are unverifiable. After all, the performance charts of real airplanes do not generally even cover operation outside the approved flight envelope.

With each 1000 feet of altitude, it will become increasingly more difficult to climb, and you will soon have to run the engines at full power. You will eventually reach a point at which you can no longer hold your airspeed, and it will be necessary for you to descend or you will stall. Remember that in the CRJ incident that the pilots were using the autopilot to hold altitude while they sat and watched their speed dwindle away as they waited for ATC instructions.

One of the problems with doing this in MSFS is that you will not be able to actually reach coffin corner, since the simulator will hit you with an "aircraft overstressed" message long before you get there. MSFS automatically considers an aircraft to be overstressed once the maximum speed has been exceeded by more than a few knots or for more than a few seconds. Thus, you will have to conduct your experiments using V_{mo} as the upper limit.

Conclusion

In essence, operating at, or near the service ceiling places your craft in extreme conditions with a much narrower margin of error. One is simultaneously operating close to the stall speed and the max operating speed. Moreover, the thinner, colder air puts added strain on the engines and other aircraft systems. Experimenting with this in the simulator offers some idea of what it is like, but not a perfect one. It does, however, make it painfully clear that flying in this environment should not be taken lightly. Careful planning and a thorough review, prior to the flight, of all techniques and procedures to be used, including emergency procedures, would be highly prudent. It would also be best to avoid undertaking such flights at night when landing options are more limited. In the event of engine loss, one should first get the aircraft within short gliding range of a suitable airport prior to attempting engine restart maneuvers requiring excessive sacrifices of altitude. ✈

FS Passengers 2004 Review

JOHN LATTANZIO

The virtual world keeps getting more and more realistic. We have had real-world weather for some time, and FS Live Traffic now fills the virtual world with the most up-to-date scheduled flight information. We have ATC and the scenery is always improving. And yet... there are no consequences if you ignore the rules! What does it matter if you land your 747 on the grass? Or do a few barrel-rolls on approach? ATC will just continue as if you landed normally. As it says in the help file, you could be making terrible errors on every flight, and not know about it. This is one of the many things that change when you install *FS Passengers*.

FS Passengers is a very versatile add-on. It includes a career structure, similar to *Airliner Pilot* but perhaps more involved. It also allows you to handle the economical management of your airline, if you wish. And it adds a dramatically improved failure system that really means you have to monitor your aircraft at all times. It even includes scenarios which combine all these aspects into providing you with a goal for your airline to achieve. It's like a "campaign" mode for combat sims. There is something for everyone. And its great!

Installation is trivial. It's currently available by download, but a CD version is in the works and may be available by the time you read this. Once installed, you have a FSP menu item in the FS2004 items listed along the top of your screen. Select this to create and manage companies, and when you are ready with a flight, select this item and then "Start FSP flight" to take you from the world of FS2004 to the world of FSP!

So, first things first. To quote again from the manual: "The main goal of FS Passengers is to complement FS2004 by giving you a complete environment in which you will be penalized for poor procedures/decisions and rewarded when you perform well." The simplest way to use FSP is to pick one of the included airlines, or create your own, and go flying a commercial flight with passengers aboard. When you choose or create your airline you must decide if you want to run in "economic mode" so that income and costs are considered. If you do then you can choose whether to include income from other flights in your fleet, or not. This is included so that you can earn money more quickly - a useful feature if you start with a Cessna but want to eventually own an international airline! Anyway, you can ignore all the monetary stuff completely if you want. It's your choice.

You can then pick a scenario for the victory conditions, if you want. There are some pre-defined scenarios, or you can create your own, or you can ignore them and go

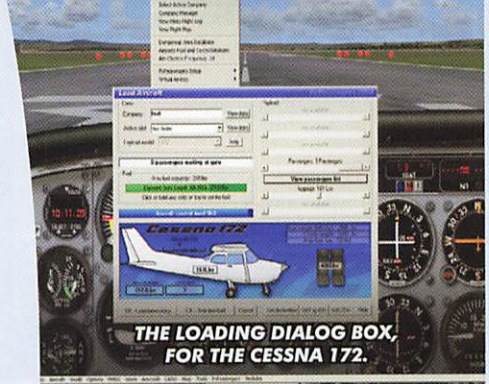
to the next step and create a pilot. Next choose the kind of career structure for your pilot: you can follow the rules, requiring certification in different kinds of aircraft before you can fly them, or you can cheat and be allowed to fly anything at any time. It's very versatile. Now, off you go!

What happens next depends on the plane you chose. If you start with something like a small GA aircraft, then you will not have any flight crew on board (well, technically this is something you can alter too). But broadly, you must load the plane, using the special dialog provided when you choose "Start FSP flight" from the FSP menu. The dialog will depend on the kind of plane. It usually includes passengers in all classes, as well as luggage and cargo. In economic mode, of course, you want to take as much cargo as you can to earn money. But watch your max TOW! You can even view the passenger list, if you like. The number of people waiting will depend on your company's reputation, which depends on your prices and your skills in flying.

So, load the plane, turn the seat-belt sign on, and turn on the muzak (your passengers seem to actually like this horrible stuff... they are happier with it on). Do your ATC work, especially if flying IFR, and get ready to push-back. By the way, FSP seems to be happy with almost any plane. I have tested a lot and it seems to be fine. Sometimes it has to modify the payload stations, but this is simply for its own purposes, and does not affect the plane or any loading programs that come with the aircraft.

You will hear passengers boarding, and the crew announcements, and even the muzak, although I am not sure this is a good thing! Ensure that all the appropriate lights are on at the right times. You are being monitored now, and all errors will cost you points later and slow your career. If you are running in economic mode, errors will cost you real money and decrease the profit of your company. Anyway, assuming you are ready for takeoff, turn the music off (it annoys passengers during takeoff) and double-check that all is ready. Then off you go! The co-pilot will callout V1, Vr and V2 for you if you enter them. FSP will also determine the ZFW for you if you are using a FMC. I wish I could think of another TLA to include in that sentence.

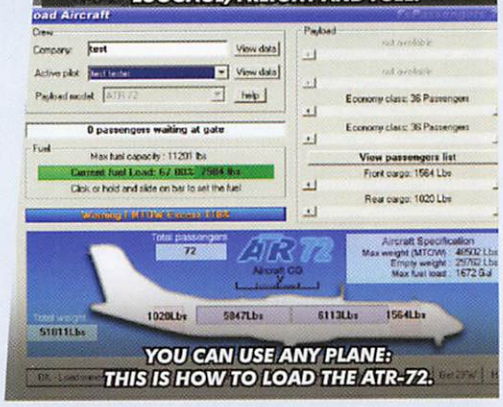
Once airborne, remember to let the passengers out of their seats by turning the


THE LOADING DIALOG BOX, FOR THE CESSNA 172.

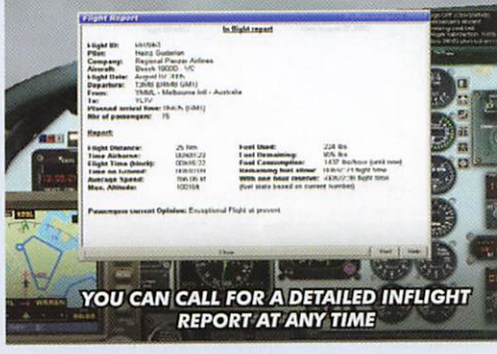
A SUMMARY OF THE FLIGHT STATUS CAN BE PART OF THE PANEL ALL THE TIME IF YOU LIKE.

LOAD THE 747 WITH PASSENGERS, LUGGAGE, FREIGHT AND FUEL.

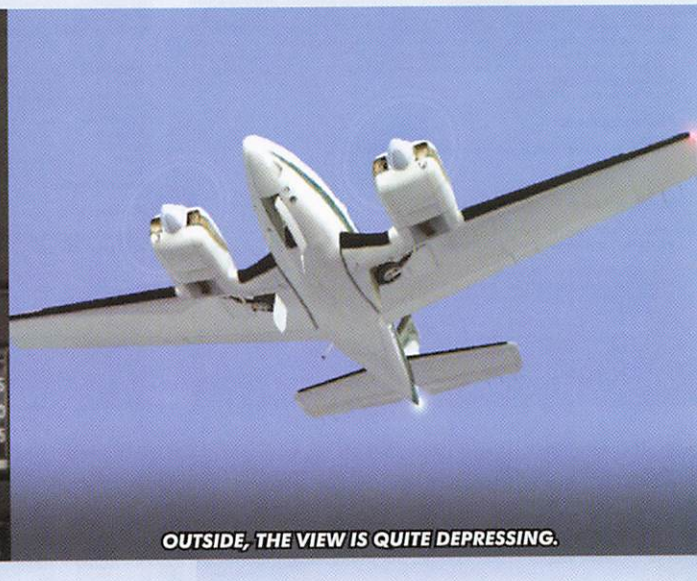
THESE WIMPY PASSENGERS ARE SCARED OF A LITTLE RAIN!



YOU CAN USE ANY PLANE: THIS IS HOW TO LOAD THE ATR-72.

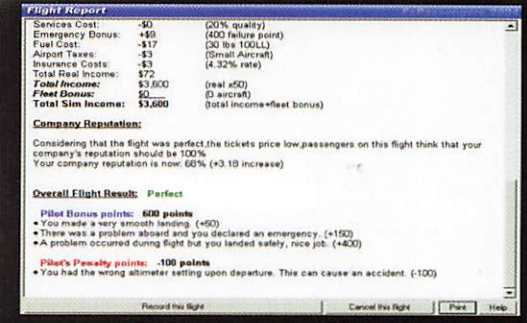

YOU CAN CALL FOR A DETAILED INFLIGHT REPORT AT ANY TIME

HERE IS SOMETHING WE NEVER WANT TO SEE... NO GREEN LIGHTS!

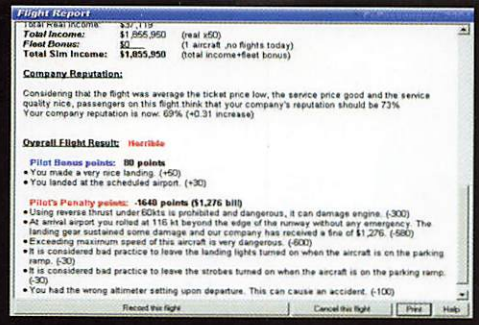

OUTSIDE, THE VIEW IS QUITE DEPRESSING.

EASY... NICE AND GENTLE...

DOWN SAFELY!


Flight Report
Services Cost: -$0 (20% quality)
Emergency Bonus: +$9 (400 failure point)
Fuel Cost: -$17 (30 lbs 100LL)
Airport Taxes: -$3 (Small Aircraft)
Insurance Costs: -$3 (4.32% rate)
Total Real Income: $72
Total Income: $3,600 (real x50)
Fleet Bonus: $0 (0 aircraft)
Total Sim Income: $3,600 (total income+fleet bonus)
Company Reputation:
Considering that the flight was perfect,the tickets price low,passengers on this flight think that your company's reputation should be 100%
Your company reputation is now: 68% (+3.18 increase)
Overall Flight Result: Perfect
Pilot Bonus points: 600 points
• You made a very smooth landing. (+50)
• There was a problem aboard and you declared an emergency. (+150)
• A problem occurred during flight but you landed safely, nice job. (+400)
Pilot's Penalty points: -100 points
• You had the wrong altimeter setting upon departure. This can cause an accident. (-100)
Record this flight
Cancel this flight
Print
Help

FLIGHT REPORTS ARE GIVEN AFTER THE FLIGHT IS COMPLETED.

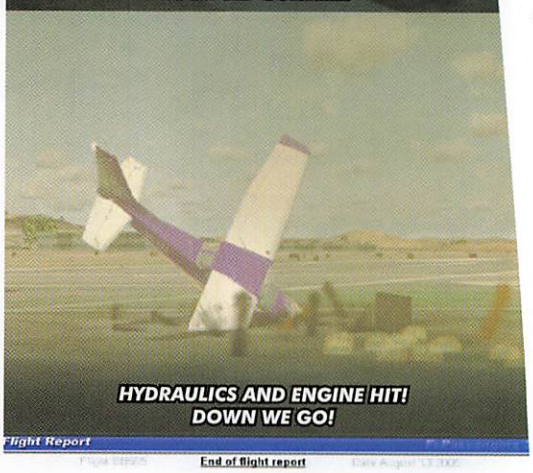

Flight Report
Total Real Income: $37,119
Total Income: $1,855,950 (real x50)
Fleet Bonus: $0 (1 aircraft ,no flights today)
Total Sim Income: $1,855,950 (total income+fleet bonus)
Company Reputation:
Considering that the flight was average the ticket price low, the service price good and the service quality nice, passengers on this flight think that your company's reputation should be 73%
Your company reputation is now: 69% (+0.31 increase)
Overall Flight Result: Horrible
Pilot Bonus points: 80 points
• You made a very nice landing. (+50)
• You landed at the scheduled airport. (+30)
Pilot's Penalty points: -1640 points ($1,276 bill)
• Using reverse thrust under 60kts is prohibited and dangerous, it can damage engine. (-300)
• At arrival airport you rolled at 116 kt beyond the edge of the runway without any emergency. The landing gear sustained some damage and our company has received a fine of $1,276. (-980)
• Exceeding maximum speed of this aircraft is very dangerous. (-600)
• It is considered bad practice to leave the landing lights turned on when the aircraft is on the parking ramp. (-30)
• It is considered bad practice to leave the strobes turned on when the aircraft is on the parking ramp. (-30)
• You had the wrong altimeter setting upon departure. This can cause an accident. (-100)
Record this flight
Cancel this flight
Print
Help

ERR... THINGS AREN'T ALWAYS PERFECT

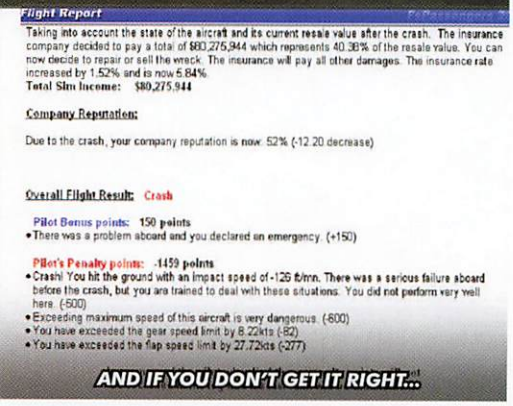
OH DEAR... NO GEAR AGAIN!

A STEEP CLIMB OUT OF BASRA AIRPORT TO AVOID GUNFIRE.

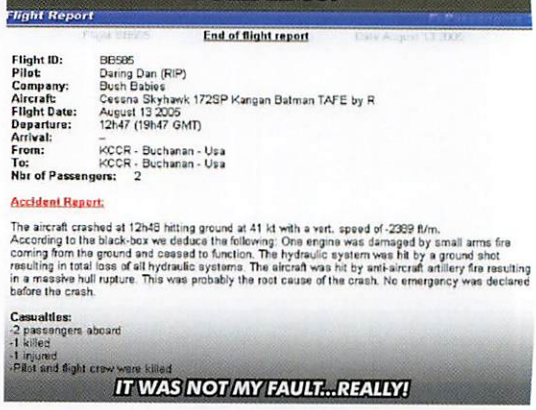
HOLD ON... THIS MAY GET ROUGH...



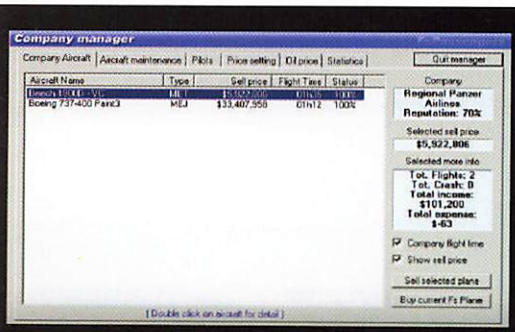
HYDRAULICS AND ENGINE HIT! DOWN WE GO!


Flight Report
Taking into account the state of the aircraft and its current resale value after the crash. The insurance company decided to pay a total of $80,275,944 which represents 40.38% of the resale value. You can now decide to repair or sell the wreck. The insurance will pay all other damages. The insurance rate increased by 1.52% and is now 5.84%
Total Sim Income: $80,275,944
Company Reputation:
Due to the crash, your company reputation is now: 52% (-12.20 decrease)
Overall Flight Result: Crash
Pilot Bonus points: 150 points
• There was a problem aboard and you declared an emergency. (+150)
Pilot's Penalty points: -1459 points
• Crash! You hit the ground with an impact speed of -126 ft/mn. There was a serious failure aboard before the crash, but you are trained to deal with these situations. You did not perform very well here. (-500)
• Exceeding maximum speed of this aircraft is very dangerous. (-600)
• You have exceeded the gear speed limit by 8.22kts (-82)
• You have exceeded the flap speed limit by 27.72kts (-277)

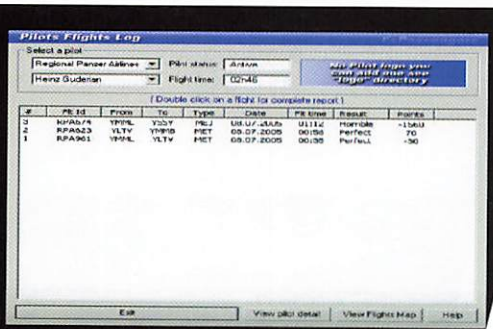
AND IF YOU DON'T GET IT RIGHT...


Flight Report
End of flight report
Flight ID: BB585
Pilot: Daring Dan (RIP)
Company: Bush Babies
Aircraft: Cessna Skyhawk 172SP Kangan Batman TAFE by R
Flight Date: August 13 2005
Departure: 12h47 (19h47 GMT)
Arrival: –
From: KCCR - Buchanan - Usa
To: KCCR - Buchanan - Usa
Nbr of Passengers: 2
Accident Report:
The aircraft crashed at 12h48 hitting ground at 41 kt with a vert. speed of -2389 ft/m.
According to the black-box we deduce the following: One engine was damaged by small arms fire coming from the ground and ceased to function. The hydraulic system was hit by a ground shot resulting in total lose of all hydraulic systems. The aircraft was hit by anti-aircraft artillery fire resulting in a massive hull rupture. This was probably the root cause of the crash. No emergency was declared before the crash.
Casualties:
-2 passengers aboard
-1 killed
-1 injured
-Pilot and flight crew were killed

IT WAS NOT MY FAULT...REALLY!



MANAGE YOUR COMPANY HERE, INCLUDING INFO ON YOUR FLEET.



EACH PILOT HAS THEIR FLIGHTS RECORDED IN THE PILOT LOG.

seatbelt sign off. There are two ways of monitoring how the flight is going. There is a short summary that can be viewed and made a part of your panel. And there is a more detailed inflight report that can be requested at any time. This includes info on how the passengers feel, and a report from the crew on how hungry or thirsty the passengers are. For longer flights in larger aircraft, you determine when to feed them and water the passengers. You choose sandwiches or hot food and, in economic mode, you must determine how much you want to spend on the food. And don't forget to show them movies to keep them occupied during the flight.

If the flight is uneventful, you then land at your destination and proceed to the gate. Let the passengers out and get your report back on how you scored. This is the scary part, as any errors you are making will be recorded. How many of us leave the strobe light on when we park? Naughty! That costs you points! Did you use reverse thrust? I hope you stopped that before you slowed to 60 knots.

So, in a nutshell, that is the heart of FSP. It makes you responsible for your behaviour by penalizing you. It will encourage responsible flying practices. And if you fly in economic mode, then you have to worry about the prices you charge, and your reputation, which is determined by how well you fly. Exceeded g-forces? Heavy landing? These, and many other things will affect your reputation.

But you don't have to fly the heavy jets. You could run a regional airline that flies light GA aircraft. Try ferrying a few passengers around remote areas. You can run a regional bush airline, and try to earn enough money to buy a large jet and then fly it on a major route. Or you can fly humanitarian missions in a war-zone. Yes, that's right. You get extra points for that, but you may get hit by snipers or rockets or light arms fire. Be ready to make emergency landings when you are hit. Climb, and descend, quickly and at steep angles to minimize the time you are vulnerable.

But perhaps the best part of all is that FSP includes random failures, determined by the amount of money you spend on maintenance and on the maintenance services available at the airports you are flying in and out of.

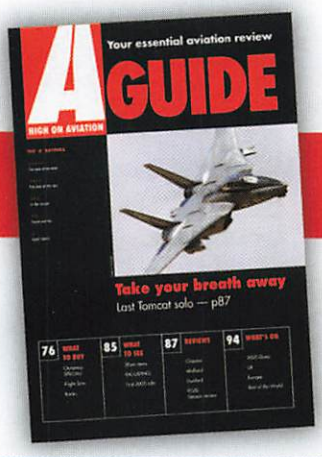
Now available from news vendors in the USA and Canada

in case of difficulty contact our distribution agent Curtis Circulation on 201-634-7400

Aircraft ILLUSTRATED

On sale every month in the USA March issue on sale March 22 includes FREE 32 page UK Airline Guide

The fastest moving monthly aviation magazine



CHECK OUT The A guide

A new 20 page reviews section every month

Plus...

- all the latest news
- great features
- stunning photography
- air-to-air shots

£3.60 available from all good newsagents or direct on subscription from: Aircraft Illustrated Subscriptions, Ian Allan Publishing Ltd, Riverdene Business Park, Molesey Road, Hersham, Surrey KT12 4RG Alternatively, telephone your order on the Subs Hotline: 01932 266622. The fax / overnight answerphone: 01932 266633 or e-mail us at: subs@ianallanpublishing.co.uk

You can also adjust the base chance of a failure, of course. I always found that the failure system in FS2004 was pretty weak. If you have to select the kind of failure, and an approximate time for the failure, then it's not much surprise when that system fails. But that is not the case with FSP.

I was flying from Livermore to San Francisco in a Baron. Not long after takeoff I heard a thud! I scanned instruments, but saw nothing wrong. The passengers also heard it and were anxious. With nothing obvious showing up, we continued toward SFO. Then I noticed that the left engine oil temperature was increasing. It quickly got too hot so I turned back toward Livermore. To try to minimize the chance of losing the engine I dropped the throttle to idle and called an emergency. Gradually I increased the throttle to slow our descent rate and try to make it back to Livermore with both engines. Fortunately the engine cooled enough that I was able to increase throttle and make a normal landing. The flight report revealed that I hit a bird on climb-out.

It's certainly wise now to watch the instruments all the time. You cannot assume that nothing will go wrong. This is a major improvement in realism. On one flight I heard another thud/bang and my heart skipped a beat. Then I heard "Captain, would you like a cup of coffee?" I had heard the door open as the flight attendant came in. I gave her quite a scare for scaring me!

I won't spoil the fun by telling you all the things that can go wrong. But let's just say that asymmetrical flap failures can be challenging, as can complete gear failures! But my favourite, so far, is gear that does not lock into position. The co-pilot advises bouncing the aircraft on the runway to try to loosen the stuck gear! This is a bit of a challenge. If you come down too slow, you have no effect on the stuck gear. If you come down too fast, you simply break the gear that did lower. I won't tell you the recommended solution.

In summary? This is a great add-on. It shares some of the ideas in Airliner Pilot, such as the career structure and the monitoring of your flight performance. It does not place you in the right-hand seat, however, when you are a First Officer (well, it does in the VC view). But it contains so much more that I would have to give it the nod over Airliner Pilot. The latter is perhaps more serious, but FSP includes many other factors as well, such as airline management and choice of flying GA aircraft as well. And the failures are a wonderful improvement over the basic FS2004 system. I had a great time with FSP, and I am sure you will. Not all of my flights will be FSP flights, but some certainly will. And I will start a few airlines with different victory conditions, and see if I can, over time, earn enough money to buy a 747.

FSP is a lot of fun, but it makes you a better pilot also. The improvements to the failure system are worth the price of the software. As is the applause from the passengers when you land after an emergency! ✈

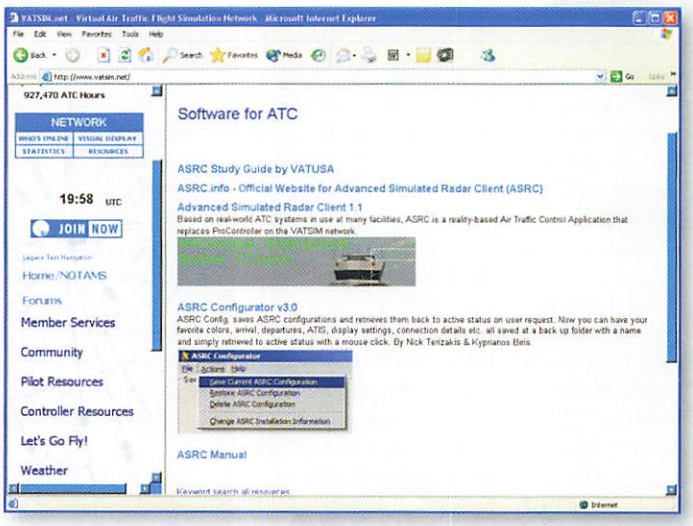
Who's In Control?

Delivery

BY ROGER CURTISS

This is the first in a series of articles on the art of air traffic control (ATC). It is intended as a primer for the aspiring controller but it is also useful for the online pilot to provide an insight into what the controller is doing and how the controller perceives the online world. By recognizing the capabilities and also the limitations of the controller's position there will be a better understanding of the pilot/controller relationship. Along the way some tips will be provided for the pilot to perhaps make things easier and more efficient for all involved.

Note that the procedures described in these articles pertain to the use of the ASRC controller client software used in VATSIM and to airspace procedures in the United States.



The first points of clarification are fairly obvious but nonetheless need to be stated:

1. **The Pilot-In-Command is the final authority on the operation of the aircraft. It is the responsibility of the PIC to determine how the aircraft will be operated.**

2. **ATC's function is to ensure separation of all aircraft on Instrument Flight Rules (IFR) flight plans and to provide operational and sequencing instructions to aircraft departing from and arriving to airport facilities.**

Given the above, bear in mind the following:

Pilots are expected to comply with ATC instructions UNLESS doing so would jeopardize the safe operation of the aircraft or pose an undue hazard to its occupants. In those situations it is incumbent upon the pilot to notify ATC of the inability to comply.

Example: If ATC instructs an aircraft to fly a specified heading and the pilot sees that the course will send the aircraft into a thunderstorm it will be necessary for the pilot to inform the controller that that heading is unacceptable and the reason for the non-compliance. This points out one of the inherent limitations of the controller…the inability to see weather that is obvious to the pilot.

So let us begin an in-depth look at each position in the online ATC world. We begin with this month's subject: Clearance Delivery.

Flight Plan

The pilot's first point of contact with ATC is usually by submitting a flight plan and requesting a clearance. Prior to taking this action the pilot will have connected to the online environment (of course, making sure that the aircraft is NOT situated on a runway) and prepared a flight plan for ATC consideration.

Shown is an image of the flight plan form from Squawkbox3 with all of the information having been inserted by the pilot.

The items of main concern to a controller on a flight plan are:

Airport of Departure: The knowledge of where you are is needed in order to determine everything else.

Destination: Knowing where you want to go is key to planning on how to get you there.

Route Requested: Having aircraft operate on predictable paths is one of the primary means of maintaining separation. Therefore, submitting a flight plan route that says "direct" does little to satisfy that requirement. If the pilot does not include any waypoints it should be expected that ATC will issue some. This is not to make things burdensome for the pilot, it is so that ATC will be able to reasonably predict and visualize the path the aircraft will be following. This allows for intelligent decisions to be made by controllers to improve traffic flow.'

Even route requests with a full complement of waypoints listed may be subject to change. Again, these changes will not be made without good reason even though that reason may not always be readily apparent to the pilot. The usual reasons for a change will be that the requested initial waypoint is designated by ATC as an arrival fix or there is a preferred routing established for that city pair.

As a side note, there is a project called the VATUSA Flightplanner which serves as a databank of preferred routes. This is an ongoing effort with new routes being added on a regular basis. This tool is a valuable resource for online flight planning and can be accessed at **www.simroutes.com**
Pilots who utilize this planner and file a route taken from it can expect to be cleared via that filed route.

Generally, most route changes if given at all will relate to that portion of the flight within that controller's ARTCC. Controllers will probably not be aware of the arrival procedures at distant airports to alter flight plans to that extent and arrival changes will be made if necessary by controllers at the destination ARTCC.

Cruising Altitude Requested: The pilot is expected to request a cruising altitude that is most efficient for the aircraft. Bear in mind that this is a **request** and while ATC will usually attempt to assign the requested altitude it may not always be possible to do so due to other traffic. It is rare that an altitude assignment within 2000' of that requested cannot be provided.

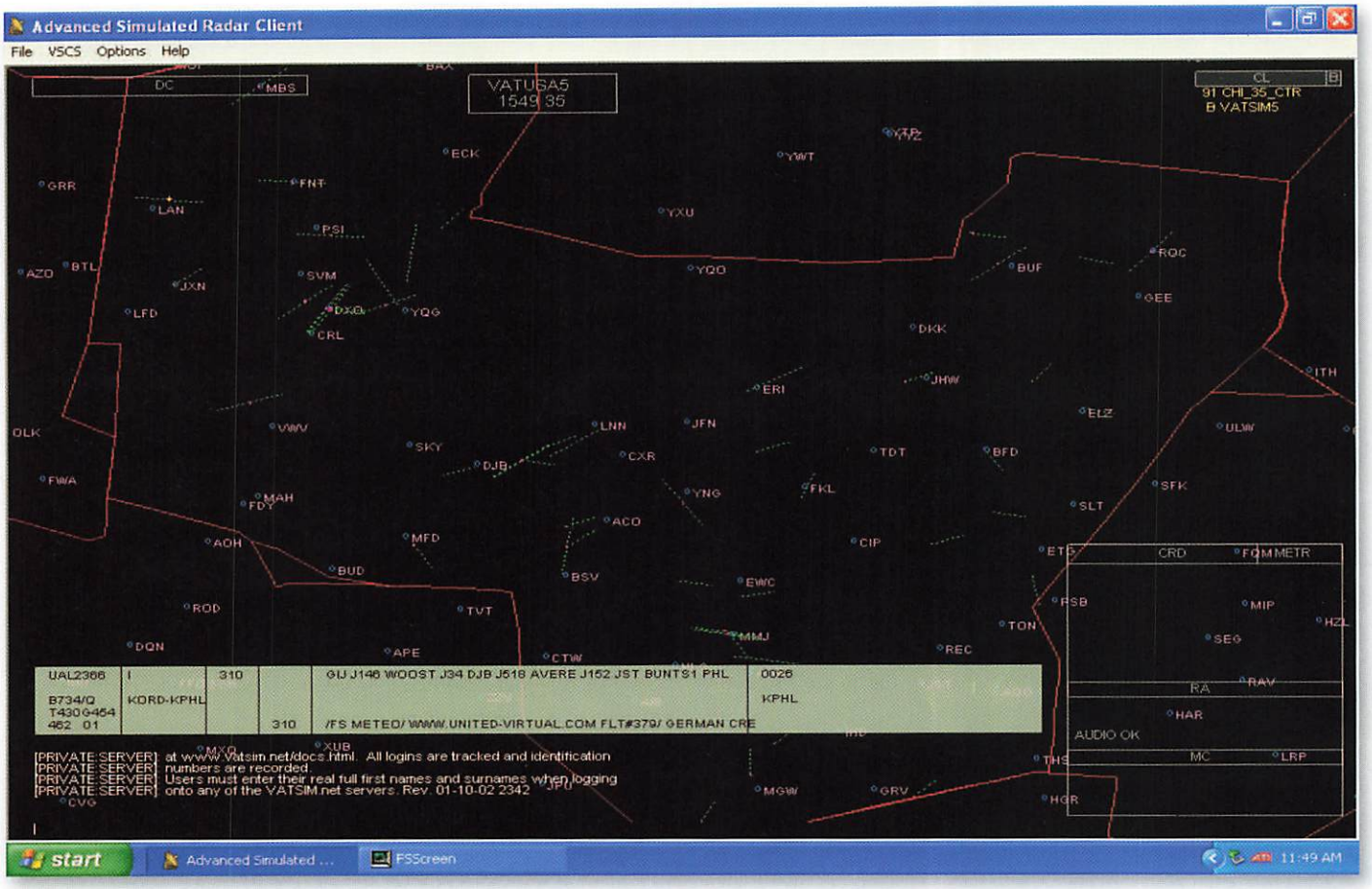
Remarks: The pilot should include any pertinent information that will assist ATC in assigning a routing i.e., "New Pilot", "No Charts", "No SIDs or STARs".

Voice Capability: Those pilots using Squawkbox3 can select from a menu of checkboxes:

- full voice capability transmit/receive
- receive voice only
- no voice capability

Pilots using an older version of Squawkbox can accomplish the same purpose by inserting one of the following in the remarks section:

/v/ full voice capability
/r/ receive only
/t/ no voice capability (text only)


Advanced Simulated Radar Client
File VSCS Options Help
VATUSA5
1549 35
91 CHI_35_CTR
B VATSIM5
UAL2366 I 310 GIJ J146 WOOST J34 DJB J518 AVERE J152 JST BUNTS1 PHL 0026
B734/Q KORD-KPHL KPHL
T430 G454
462 01 310 /FS METEO/ WWW.UNITED-VIRTUAL.COM FLT#379/ GERMAN CRE
[PRIVATE SERVER] at www.vatsim.net/docs.html. All logins are tracked and identification
[PRIVATE SERVER] numbers are recorded.
[PRIVATE SERVER] Users must enter their real full first names and surnames when logging
[PRIVATE SERVER] onto any of the VATSIM net servers. Rev. 01-10-02 2342
AUDIO OK
start
Advanced Simulated ...
FSScreen
11:49 AM

While the flight plan form requests additional information (alternate airport, aircraft cruising speed, anticipated duration of flight, fuel on board, pilot home base) these are of lesser importance to ATC and the points detailed above are the ones that a controller utilizes to formulate and issue a clearance and are what the controller will most often see during the flight.

The accompanying image shows the flight strip of UAL2366. This is what is visible to the controller after the pilot sends the flight plan. It is deciphered as follows:

UAL2366 - Aircraft callsign (seven digit maximum).
B734/Q - Aircraft type and equipment suffix.
T430 G454 - True airspeed and groundspeed (the TAS is entered by the pilot and the GS is computed by the radar. It is also visible on the radarscreen datatag for the "blip").
462 01 - These are codes entered by the system to track the aircraft. The pilot would be unaware of them. They are for controller use only.
I - IFR flight plan.
KORD-KPHL - Departure/destination.
310 (top of column) - A temporary altitude if issued (the pilot has no capability to request this).
310 (lower column) - Cruising altitude requested.
GIJ J146 WOOST J34 DJB J519 AVERE J152 JST BUNTS1 - The route as entered by the pilot.
/FS METEO/www.united-virtual.com Flt #379/German Crew - Remarks as entered by the pilot.
0026 - Squawk code (either dialed in at time of flight plan request or assigned by ATC).
KPHL - ICAO code of alternate airport (if designated).

Clearance Request

With a flight plan prepared and sent the pilot must contact the appropriate controller to accept the flight plan and issue a clearance. The selection of the controller is determined by what positions are being worked at that particular time. The pilot should look for controllers in the following order and select the highest one on this list:

DEL = Clearance Delivery
GND = Ground
TWR = Tower
DEP = Departure
APP = Approach
CTR = Center

Regardless of which controller is selected the phraseology to request clearance is the same with one small exception for APP DEP or CTR contacts. For the first three an initial call of "DEL/GND/TWR (callsign) requesting clearance to KDFW" is all that is necessary. If calling a DEP/APP/CTR position the aircraft's location should be given as well, as these facilities have more than one airport in their control area.

Usually a controller will respond either with an almost immediate "(callsign) Clearance on request standby" or there will be a pause of a few moments while the controller prepares the clearance.

Here is what is going on "behind the scenes" after that clearance request has been received and may be the reason for the pause:

- The controller will radioselect the callsign of the aircraft calling in order to be able to either communicate via text or to display the

aircraft's data in order to review and amend it as necessary.

- The controller will assign a transponder code and then display the flight plan strip.
- The flight strip will be viewed and any necessary adjustments (assigning an initial altitude, changing the cruise altitude, changing part of the route) will be made.

The controller will then transmit the clearance to the pilot using the **CRAFT sequence** (*which of course everyone recalls as explained in the CP Vol 9 Iss 6 article - Basics of Controlling*). Any changes made to the flight plan are recorded on the flight strip and will be seen by any other controllers during that aircraft's flight.

The pilot will readback the pertinent points of the clearance (any changes from the requested route, the initial altitude, the cruise altitude, departure frequency and transponder code) and will be instructed when and whom to contact next. "(callsign) Readback correct. Contact xxx_GND on 121.8 ready to taxi". In some instances the DEL controller may provide the pilot with an expected departure runway. Having that information is very helpful for pilots who are programming Flight Management Systems (FMS) or Global Positioning Satellite (GPS) systems with their flight plan routes.

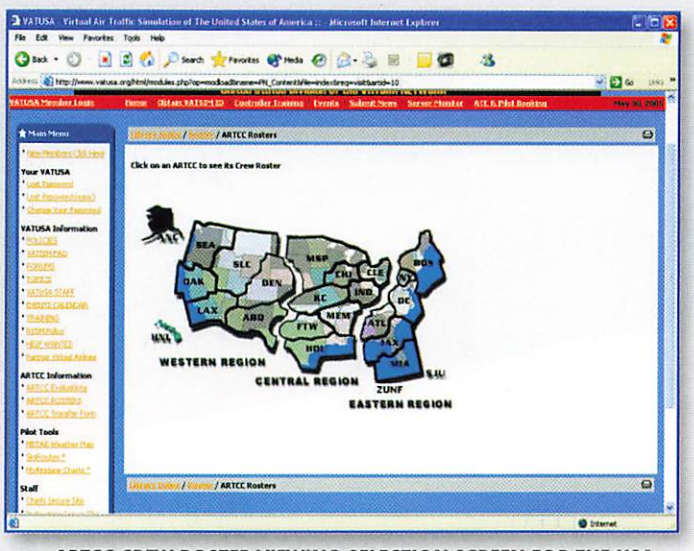
THIS IMAGE OF THE SERVINFO USA DETAILS PAGE SHOWS A TYPICAL EVENING'S DEPICTION OF ONLINE CONTROLLER ACTIVITY. THERE ARE CONTROLLERS WORKING ACROSS THE COUNTRY AND A FULL COMPLEMENT OF POSITIONS FROM DEL TO CTR ARE REPRESENTED.

Other Factors

It sounds like a relatively simple process and considering that this is the extent of involvement for a controller working the Clearance Delivery position it appears to require limited effort. However, consider that in most cases the DEL position is an entry level slot where new student controllers are first assigned after joining an ARTCC roster. This fact gives rise to a few possible complications unique to the new controller:

- may be unfamiliar with all of the functions of the controller software.
- may still be learning the proper phraseology to use when communicating with pilots.
- is not yet experienced with the specific departure fixes for that airport or the preferred routes to common destinations.
- may not yet be familiar with the identifiers for some airports or the enroute fixes to be able to know what direction of flight will be (other than up) in order to assign the correct cruise altitude.
- all of this may be occurring during a fly-in/fly-out event when there are at least a half dozen pilots all requesting clearances at the same time.

These can mount up to a lot of pressure on a student controller and it does appear that more often than not pilots are cognizant of this and display remarkable patience waiting for a clearance to be issued or in clarifying changes to flight plans.



ARTCC CREW ROSTER VIEWING SELECTION SCREEN FOR THE USA

It is also an outstanding learning experience for the student controller and the knowledge gained of altitudes and routings serves them well when they move up to the other positions where aircraft movement instructions are given.

Pilots can help to expedite the process by being prepared to copy their clearance instructions when they request them from the controller. This means having a piece of paper and a pen at hand and being ready to use them. This is less of a necessity for text communications as the clearance will be on the screen.

I like to keep it simple…I write down any route changes and then use a simple block

Initial Altitude / Cruise Altitude
Dep. Freq / Transponder Code

so that a clearance issued as, "Cleared as filed…climb and maintain 10,000 expect FL370 ten minutes after departure. Departure frequency 124.00. Squawk 4501" would be noted:

100/370
124.00/4501

This allows me to write the information down as it is given in a set format that makes it easy to read back; "as filed, 10,000, FL370, 124.0, 4501".

Once a readback has been received the DEL controller will instruct the pilot to contact the next applicable controller for taxi instructions or takeoff clearance. DEL controllers generally do not handle aircraft movements although on rare occasions a DEL controller may serve in a limited capacity as a GND controller in order to assist pilots.

Next Month---Ground Control ✈

Fly Anything!
Ultimate Realism,
Ultimate Versatility.
X-PLANE 8

A Tale of Three Cities

Scenery Packages for X-Plane

BY CHUCK BODEEN

Studying three different custom scenery sets (Fig 1) and comparing them with actual photos, stock panoramas from two versions of X-Plane and MSFS 2004 has made me feel like a real bird's eye photographer. I was raised in Portland, Oregon, and have relatives and friends in Tucson, Arizona, so I knew a little of what to expect at those two locations. Furthermore, I was lucky enough to obtain permission to use some nice, professional aerial photos of Portland and Tucson. Anchorage, Alaska, was a complete mystery to me until I started this project. One shot of Anchorage came from a U.S. government source and one of an Artic sunset from a friendly photographer.

The scenery comes from two different authors. Eric Gillett's ***RealScenery*** provides Tucson and Anchorage. Eric also has scenery for Seattle-Tacoma, Washington which was reviewed on these pages in the August 2004 issue.. Tom Curtis is responsible for Portland which is available at Cameron Bowerman's ***X-Plane Freeware Group*** which brought you such areas as SOCAL (Los Angeles) - reviewed in March 2003 - and Glitter Gulch (Las Vegas).

The Areas Covered

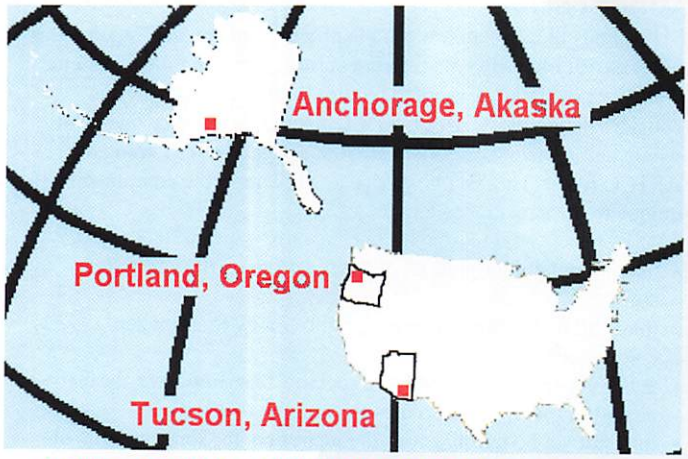


FIGURE 1: A CORNER OF THE WORLD SHOWING THE THREE CITIES – YES, ALASKA IS REALLY THAT BIG.

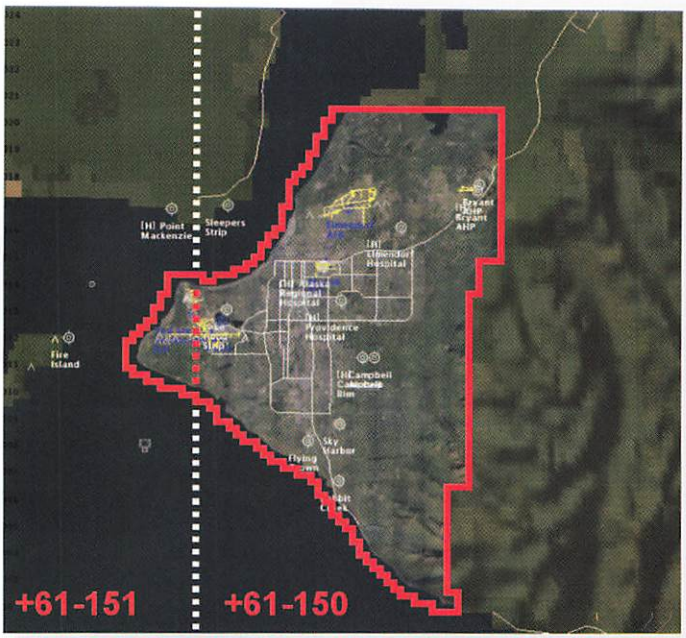


FIGURE 2: THE TED STEVENS ANCHORAGE INTERNATIONAL AIRPORT LIES IN TWO ENV FILES

The center of the longest runway at the Ted Stevens airport (PANC) is at longitude -150.0035 which places it in the +61-151 env file (remember that those files are named after their southwest corners) while most of Anchorage is in the +61-150 env (Fig 2). The package comes with two extra env files to the south, +60-150 and +60-151 that are stock XP scenery but are included to make it easier for the user to fly around a large area.

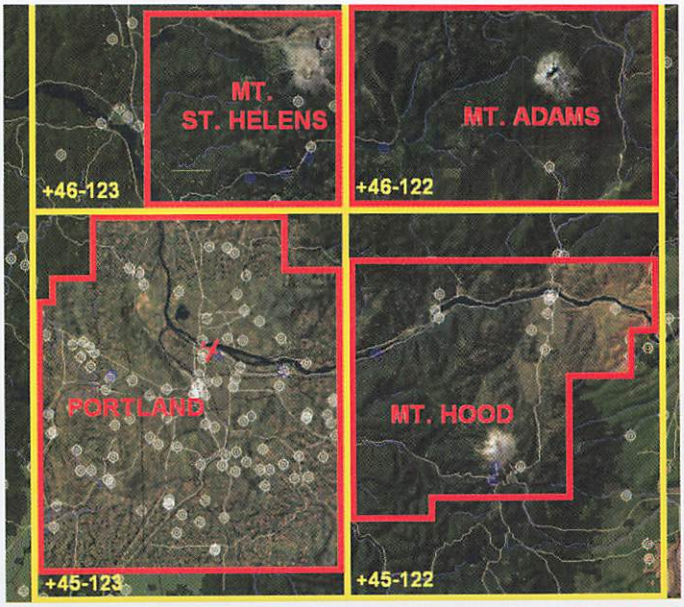


FIGURE 3: THE PORTLAND PACKAGE ALSO DETAILS THREE PROMINENT MOUNTAINS AND USES FOUR ENV FILES

The city of Portland and neighboring suburbs both in Oregon and Washington State nearly fills +45-123. Each of the other env files are centered around one of the mountains that are visible from KPDX (Fig 3)

FIGURE 4. THE TUCSON COLLECTION USES PARTS OF TWO ENV FILES

The main part of Tucson is in the +32-111 env file. Interstate Highway 10 runs through town in a NW-SE direction and is extended into +32-112. That second env to the west of the city is called "Tucson Expansion" and is installed separately. Complete instructions come with the package (Fig 4).

Geometry and Resolution

Each of the cities is at different latitude and that affects the details of the way the scenery is applied. An X-Plane env file covers one degree of longitude by one degree of latitude. This means that the further north you go, the fewer square miles are in each env because the lines of longitude converge at the North Pole. All env files have 150 x 200 = 30,000 quads, so the quads get smaller also (Fig 5).

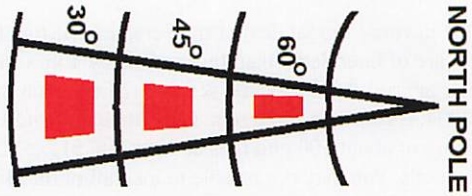


FIGURE 5: ENV FILES GET SMALLER AS YOU GO TOWARD A POLE

	ANCHORAGE	PORTLAND	TUCSON
Average Latitude	61.2°	45.6°	32.4°
Square miles per env	2349	3372	4091
Quads per env file	30,000	30,000	30,000
Square miles per quad	0.078	0.112	0.136
Quads overlaid by one png	2 x 2	10 x 10	3 x 3
Quads per png	4	100	9
Square miles per png	0.3	11.2	1.2
Number of pngs	525	440	697
Total square miles	164	4946	855
Size of low res pngs	256 x 256	256 x 256	256 x 256
Size of medium pngs	512 x 512	512 x 512	512 x 512
Size of high res pngs	1024 x 1024	512 x 512	1024 x 1024
Custom objects	0	150	0
Custom object texture files	0	50	0

SOME PROPERTIES OF THE THREE SETS OF CUSTOM SCENERY FILES

Custom terrain texture png files can be spread out over any number of quads as they are overlaid on the env file using World Maker, so this choice also affects the final resolution of the results as displayed when flying in X-Plane. The most logical thing to do is to use one png to cover a square area of quads, e.g. 3 x 3 or 10 x 10.

What do the numbers in the table reveal? Anchorage and Tucson use more custom terrain pngs than Portland and they are of higher resolution. On the other hand, the Portland scenery covers a much larger area around the city and is populated with hundreds of custom objects – building, bridges, boats, static airplanes, airport terminal gates, etc. In short, the sets from ***RealScenery*** have a different objective from that of the ***Freeware Group***.

FIGURE 6: THESE ARE THE TEXTURES OF SINGLE QUADS TAKEN FROM ANCHORAGE, TUCSON, AND PORTLAND SCENERY

Figure 6 shows a high resolution quad from Anchorage which is 1/4th of a 1024 x 1024. For Tucson, it is 1/9th of a 1024 x 1024 image and for the Portland set is 1/100th of a 512 x 512 png.

Eric Gillett devoted a great deal of time creating custom terrain textures. His are of finer detail than those made by Tom Curtis, but cover smaller areas. Like the Seattle scenery reviewed on these pages in August 2004, it comes in three sets: Fast, Standard, and High; each consisting of about 500 png files at 256x256, 512x512, and 1024x1024 pixels. You may not be able to load all of the High set – I had trouble even with my 2 Gig RAM. But what you can do is start with a copy of one of the lower resolution env sets and substitute individual pngs of higher resolution in areas where you would like more detail since the pngs have the same names in each set. This is accomplished by copy and paste of the higher resolution pngs into your own custom terrain textures folder.

In Figure 7 you can see that detail visible when approaching the ground is quite different for the three cities. Taxi lines are visible at PANC, Anchorage. Runways and taxis are clear at KTUS, Tucson. You can make out the runway at KPDX, Portland, but it looks much nicer at high altitude.

Anchorage

FIGURE 8: ANCHORAGE WITH ELMENDORF AFB EMPHASIZED

The top left picture in Figure 8 is from the custom scenery and just below is an actual photo. The top right image is the way the area is rendered with the stock X-Plane 7 **view. MSFS 2004 does a better job in the winter as you can see on the bottom right. Note: The special X-Plane 8 scenery with TOTALLY INSANE (as Austin Meyer puts it) numbers of roads is available only for the lower 48 contiguous United States, so XP 8 could not be used for comparison at Anchorage.**

I made the screenshots by first looking at the real photo and then flying around the area until I found the approximate location, altitude, and heading of the photographer's airplane. Both X-Plane and MSFS 2004 have map views where small adjustments to these factors can be adjusted while the simulator is paused.

FIGURE 7: THESE ARE THE SAME QUADS BLOWN UP TO SHOW THE DETAIL YOU WOULD SEE WHEN FLYING

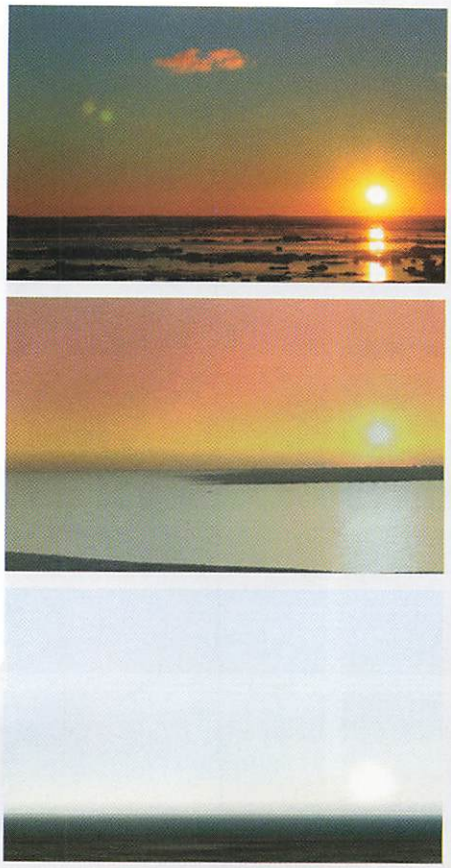


FIGURE 9: ARCTIC SUNSETS

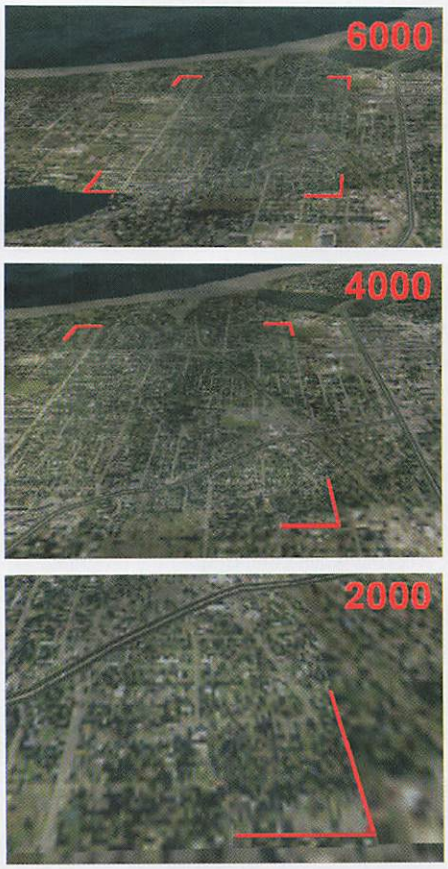


FIGURE 10: ANCHORAGE HIGH AND MEDIUM SCENERY FROM DIFFERENT ALTITUDES (FEET)

The name **Arctic** comes from the ancient Greek αρκτος, meaning 'bear', and is a reference to the constellations of the Great Bear and Little Bear (Ursa Major and Ursa Minor) located near the North Star – which is Polaris, the tail of the Little Bear. Above 66° 33'north latitude in the summer the sun does not set. This is called the "Land of the Midnight Sun". Anchorage is close to 61° so they always have sunsets there. A real photo (top of Figure 9) is compared with a screenshot from MSFS 2004 and (bottom) one from X-Plane 7. The sunset in X-Plane v8 was essentially the same as that in v7.

For Figure 10 I used Standard, medium resolution pngs for most of Anchorage but High resolution scenery in 16 quads outlined in red. From 6,000 feet or higher you can hardly tell the difference. At 4,000 feet some difference is noticeable and there is a significant variation at 2,000 feet and below. This effect is common to all three cities.

Portland

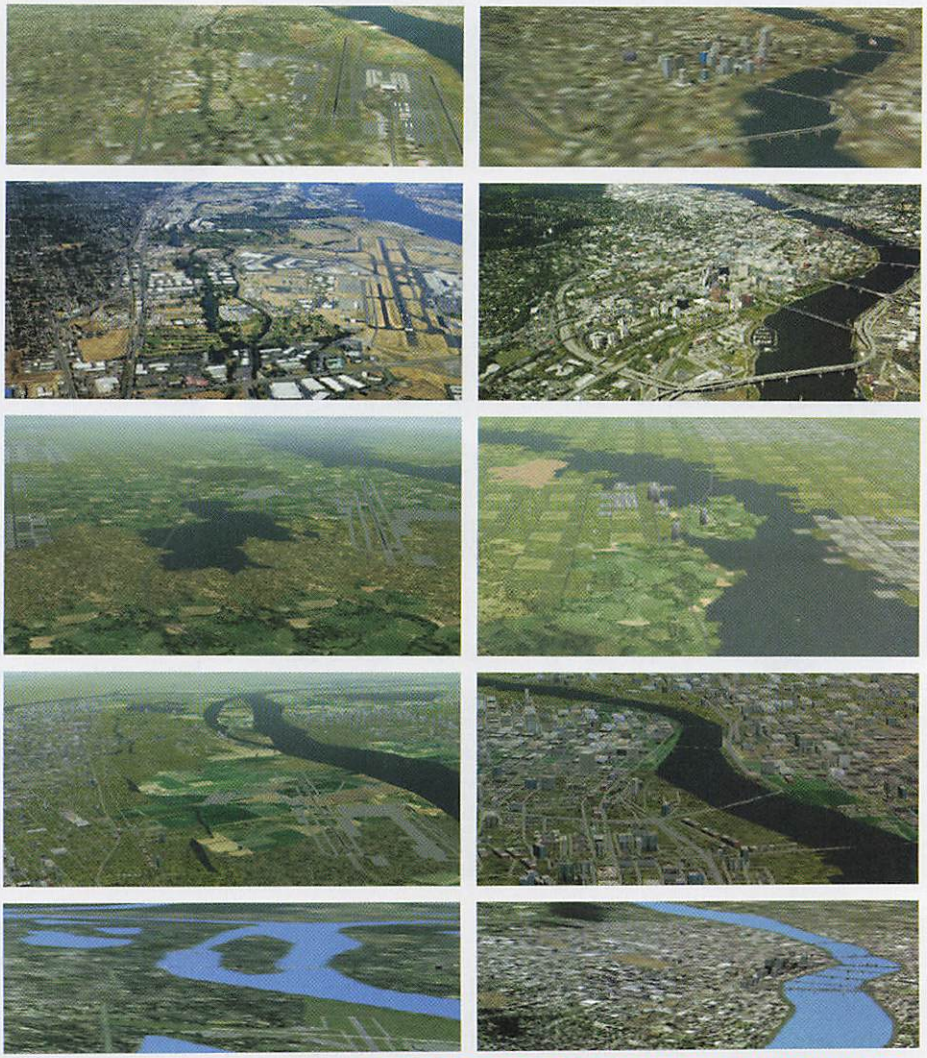


FIGURE 11: DIFFERENT RENDERINGS OF THE PORTLAND AIRPORT AND THE DOWNTOWN AREA

The detail in the custom terrain files is not as great as in those from RealScenery, but to compensate there are over 150 custom objects defined in 2.4 Megabytes of code. Starting from the top of Figure 11, we have custom scenery, actual photos, X-plane 7 stock, X-Plane 8 with all the roads, and MSFS 2004. For my money the only possible rival to the ***Freeware*** landscapes are those from X-Plane 8 – but you can use Curtis' nice work in XP 7 or 8.

The Portland Custom Objects

Among the many custom objects in the Portland scenery shown in Figure 12 are the very accurate terminal with jetways at KPDX, a seaplane landing upstream on the Columbia River at Cougar Creek, and the Freemont Bridge across the Willamette River in the downtown area. Portland is at the

confluence of the Columbia and Willamette Rivers and has many bridges, all 15 of which are modeled with the scenery set. There are 28 static airplanes, 77 objects used to construct the airport terminal gates, and 74 used for buildings, ships, etc.

FIGURE 12: SOME OF THE DETAILED OBJECTS IN PORTLAND

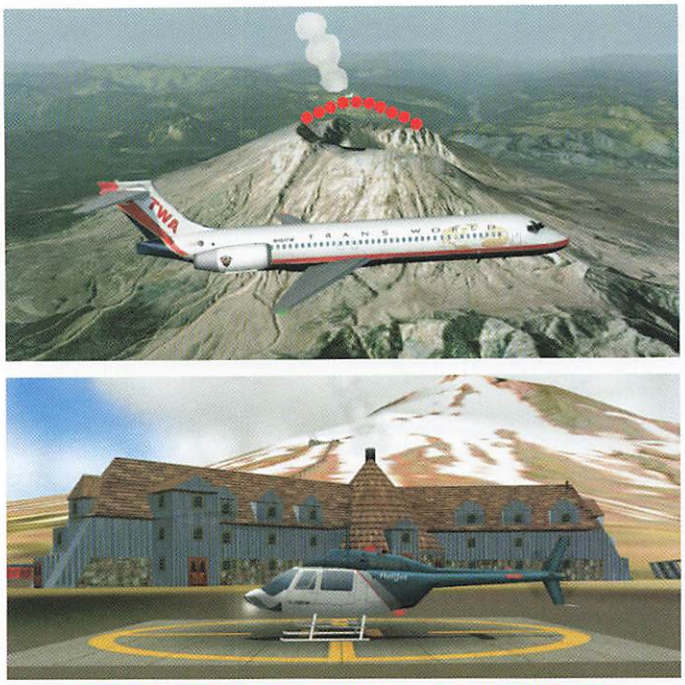


FIGURE 13: MOUNT ST. HELENS (TOP) AND MOUNT HOOD

For years, Mount St. Helens (Fig 13) looked much like an ice cream cone with a rounded top - see the red dots in the picture. Then in 1980 the dormant volcano came to life and literally blew its top, changing over 200 square miles of **rich forest into a grey, lifeless landscape and killing 57 people in the process. In 2004 less violent activity returned and is still going on. The Portland scenery has smoke (or steam) rising from the mountain.**

Mount Hood is nicely rendered, complete with an excellent Timberline Lodge. The lodge was built by the CCC (Civilian Conservation Corps) in the late 1930s at the end of the Great Depression. I worked there as a busboy for two summers in my high school days. I used to ride the detailed "Magic Mile" ski lift to the west side of the lodge that runs to a hut a mile up the side of the mountain. If you look closely, you will see smoke emanating from the giant fireplace in the lodge.

Tucson

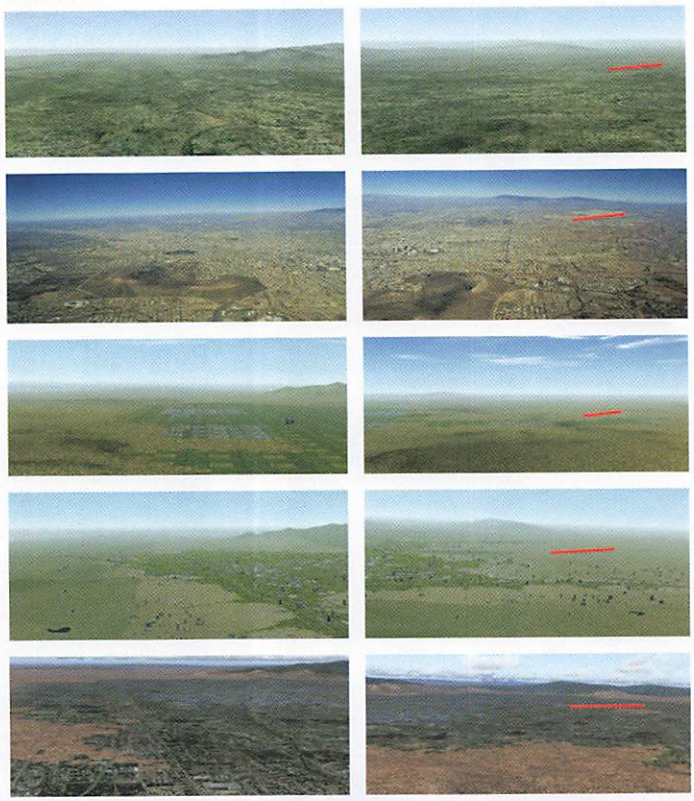


FIGURE 14: TUCSON COMPARISONS - DAVIS MONTHAN AFB HAS BEEN HIGHLIGHTED.

As we did with the Portland, the pictures of Tucson in Figure 14 have the custom screenshots at the top, followed (descending) by real photos, then X-Plane 7, X-Plane 8, and MSFS 2004. The Microsoft product shows up a bit better in Tucson than it does in Portland. The *RealScenery* job is very well done.

Wrap-up

RealScenery - www.realscenery.com - charges US$29 for one package on DVD or CDs, $55 for any two, or $79 for all three (that includes Seattle). The price includes domestic and international shipping. The *Freeware Project* - www.xpscenery.com - charges US$20 for a Portland set download. The same price applies to all of their packages. All three scenery sets are really outstanding and represent countless hours of work on the parts of Eric Gillett, Tom Curtis, and Cameron Bowerman. Each approached the job with a different goal in mind and did a bang-up job. All three are well worth the money!

HINT: X-Plane and World-Maker both remember in their Preference (prf) files where you were working when you last used the programs. If you had been using a custom package and want to go to a different area when you restart, the first thing the programs will do is to load all the terrain texture files for the original custom location. You can save load time (minutes) by moving to a non-custom location before you shut down the programs. Then you will get a quicker restart and can go on to another custom or non-custom area more quickly.

PHOTO CREDITS

Anchorage Sunset: John Gomes / Anchorage Alaska.
Downtown and Elmendorf AFB: U.S. Air Force.
Portland: Aerolist Photographers, Inc. Renton, Washington.
Tucson: Landiscor Aerial Information, Phoenix, Arizona.

D.I.Y. PANEL BUILDING Part III

BY PETER STARK

Welcome to the final part of this series where we have attempted to unlock the secrets of gauges, bitmaps and panels. This month we will use the knowledge and skills developed over the past 2 months to make a basic panel for the FS2004 default Piper Cherokee. You may have to review the past two tutorials to complete this panel as I refer to sections and parameters of the panel.cfg file that were covered earlier. I would also remind you to make a safe backup of any default files you may wish to 'tweak' and to respect other people's copyrights.

Making the Cherokee Flyable

As this aircraft is used as an AI aircraft, the aircraft.cfg file and the piper_pa28_180.air file found in the "pa28_180" aircraft folder will need to be changed to make the default Piper Cherokee usable. Download **p180rd.zip** by Touradg Morassaei from Avsim.com and replace the default aircraft.cfg and piper_pa28_180.air files (after first backing up the originals of course). Even though these replacement files were written for FS2002, they work very well in FS9. You will know that you have done this correctly when the Piper Cherokee 180 appears in your "Select Aircraft" list.

Bitmap Selection & Preparation

Now open up the Flight Simulator 9/Aircraft/PA28_180 folder and create a new folder here called 'Panel'. This is where we will be placing all the files we need to get our panel working. The first part we will tackle is the actual bitmap background image where all the gauges and switches will be placed. There are basically three options:

1. Use Microsoft Paint (that comes bundled with Windows) or any other bitmap editing software you may have to create a 1024x768 pixel panel background. As this is your first panel, it can be as simple as you like (Figure 1).

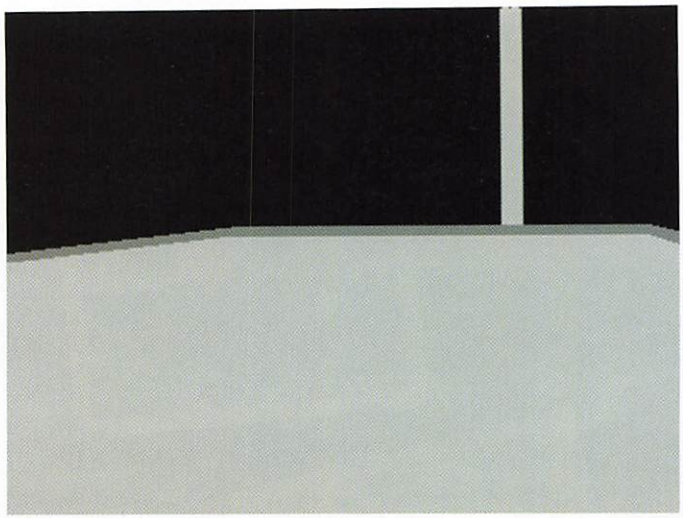


FIGURE 1: A VERY BASIC PANEL BITMAP IMAGE.

2. You may wish to spend more time and use an existing photograph as a template to make a more realistic panel background (Figure 2). You can find suitable images on websites such as Airliners.net and I thank Stefan Stromwall for permission to use his image in this tutorial.

FIGURE 2: STEFAN STROMWALL'S ORIGINAL PHOTO.

3. If you own more sophisticated image editing software, you may wish to take it one step further and create a work of art that includes shadows of the gauges, reflective glass, manufacturer's logos etc.

I have chosen middle ground here and opted to use an existing photograph such as that in Figure 2.

We now need to make an important change to our selected image. FS2004 reads the color black as transparent. So if your bitmap has large areas of true black (an RGB value of 0,0,0), they will appear transparent when you start the simulator. It will look like you have gaping holes in your panel and aircraft! Also, we actually want the areas covered by the windshield to be painted a true black so that they DO appear transparent in FS2004 and we can see through them.

To change this, open the selected image in MS Paint or similar. Carefully paint out the areas covered by the windscreen in true black (RGB 0,0,0). Zoom in where required to get as clean an edge as possible with the top of the instrument coaming and on the sides of the center post to enhance the appearance of your finished panel (Figure 3). Remember to save your work as a bitmap (*.bmp) image.

FIGURE 3: THE WIND SCREEN PAINTED IN TRUE BLACK.

Now change to a contrasting color such as light grey and paint out all the panel area except the coaming at the top of the panel. The actual panel background color at this stage isn't important, as long as it's not true black. It is simple to edit later. If you have taken some care you should end up with an image looking something like Figure 4.

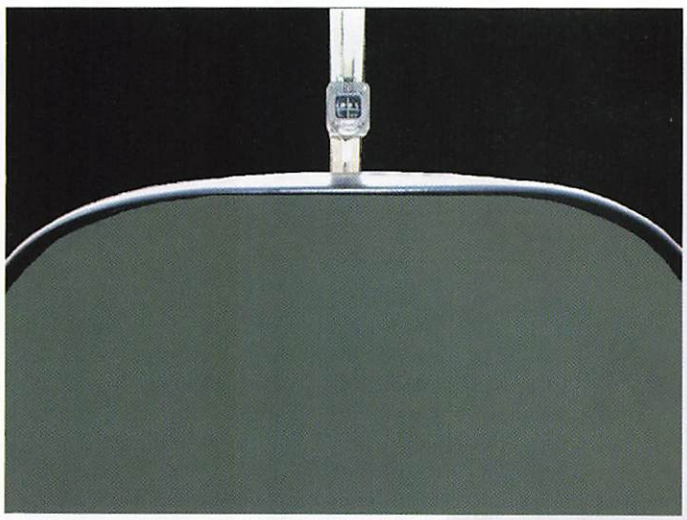


FIGURE 4: THE MAIN PANEL PAINTED OUT.

Now finally, crop your image so that the center post is off to the right a little and the bottom of the image which contains the circuit breakers, rudder pedals etc. is removed (Figure 5). If you didn't do this, the center post would obscure the runway centerline and the panel would be extremely high, restricting forward visibility. Now resize your edited image to 1024x768 pixels and save it as "main_panel.bmp" in your pa28_180 Panel folder that we created earlier.

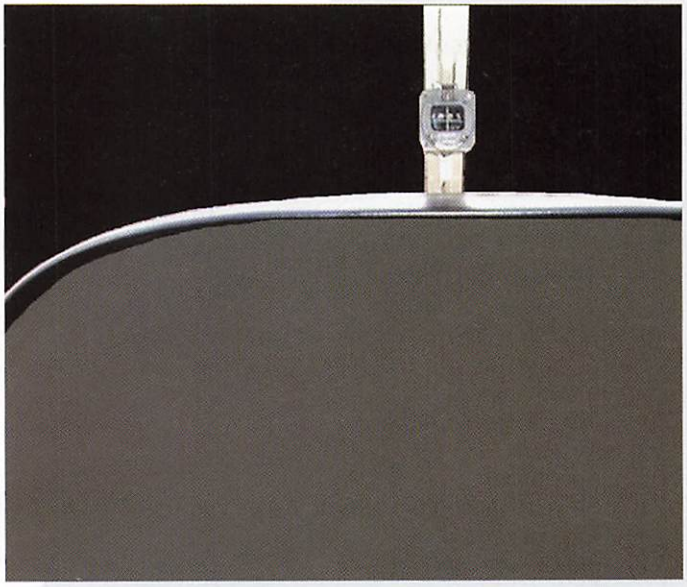


FIGURE 1: THE SELECTED BITMAP AFTER CROPPING AND RESIZING.

By now you should have a pretty cool background image that will allow you to start placing gauges and switches. By retaining the center post and coaming from Stefan's original image we have maintained a degree of photo-realistic effect, but made things simpler to customize our panel layout as we will now see.

Gauge Layout

It helps if we already have some ideas about where we want to put our gauges and switches. You can simply use a sketch or copy the placement from an actual aircraft. I chose to recreate the panel of a very old Cherokee I used to fly in the 1970's. Not having a suitable image for publication, I simply used Paint to overlay the approximate gauge positions onto a copy of the bitmap we completed earlier. This doesn't need to be fancy or complex - it is just a guide.

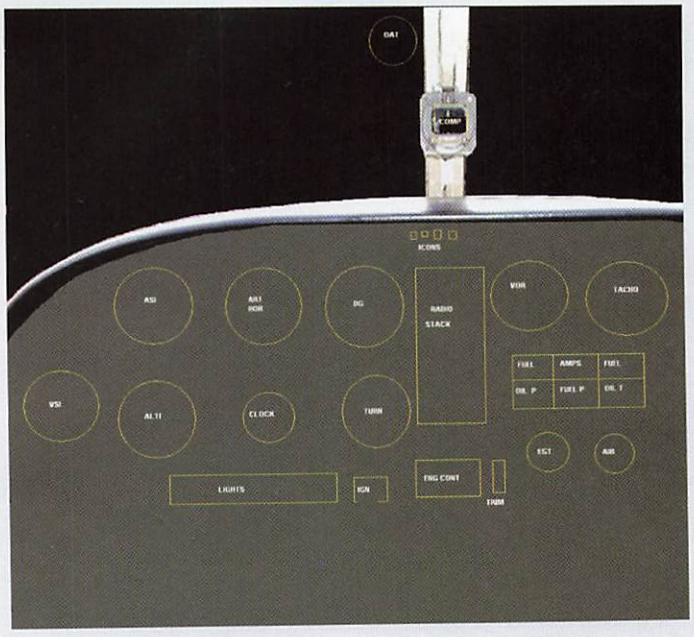


FIGURE 6: A COPY OF OUR EDITED PANEL BITMAP WITH APPROXIMATE GAUGE POSITIONS MARKED. NOTE THE UNCONVENTIONAL GAUGE LAYOUT.

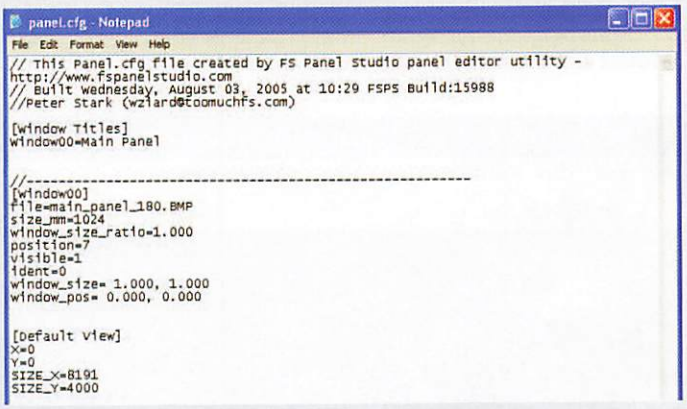
The Panel.cfg File

So we now have our background image (main_panel.bmp) and a good idea of our layout. We can now move on to the panel.cfg file. The earlier tutorials in this series can be used as a guide to creating your own file in Notepad (or similar text editor). We need to create our header, [Window Titles] and the opening lines of our all important [Windows00] section. Figure 7 shows mine; re-read the earlier tutorials if you need an explanation of any sections or commands.

Now is also a good time to add the [Default View] section. I used:

```
[Default View]
X=0
Y=0
SIZE_X=8191
SIZE_Y=4000
```

Your 'y' value may differ from mine as the 'y' value here will depend very much on your panel bitmap. Don't worry too much if it isn't perfect just yet - you can edit it during the test flying stage.


panel.cfg - Notepad

File Edit Format View Help

```
// This Panel.cfg file created by FS Panel Studio panel editor utility -
http://www.fspanelstudio.com
// Built Wednesday, August 03, 2005 at 10:29 FSPS Build:15988
//Peter Stark (wzlard@toomuchfs.com)

[Window Titles]
Window00=Main Panel


//------------------------------------------------------------
[Window00]
file=main_panel_180.BMP
size_mm=1024
window_size_ratio=1.000
position=7
visible=1
ident=0
window_size= 1.000, 1.000
window_pos= 0.000, 0.000


[Default View]
X=0
Y=0
SIZE_X=8191
SIZE_Y=4000
```

FIGURE 7: A SUITABLE START TO OUR PANEL.CFG FILE.

Placing the Gauges

When we edited the panel.cfg file in the last tutorial I gave you the 'x' and 'y' values to place the gauges correctly. If you continued editing more gauges, it probably occurred to you just how difficult it can be to get the values correct and how time consuming it would be to edit the gauge positions and sizes to get an appealing appearance.

Well - it is time consuming! This can be without a doubt the most tedious part of panel creation. You need to estimate gauge positions and sizes using your template or sketch as a guide and be prepared to do lots of editing using the syntax and commands we examined in Part 2 of this series.

But I confess - I don't do it that way any more. Back in 2000, a guy by the name of Ed Struzynski created a wonderful freeware gauge placement program called 'cfgedit'. It saved panel 'tweakers' and designers countless hours by utilizing a WYSIWYG approach to gauge placement. You could drag and drop gauges onto your bitmap and 'cfgedit' would write part of the panel.cfg file for you. Some of you may even have this program already. In more recent times, Ed reworked the code which allows use of the newer cabinet files as well as a host of other neat features, such as the ability to edit gauge bitmaps, edit panel.cfg files from within his program, line up gauge stacks vertically and horizontally and browse through your gauges folder to find the ideal gauge that fits your panel.

This extensive update was released commercially as *FS Panel Studio* and is available at **http://www.fspanelstudio.com** There is a demo version available for you to download and try out - but the full version is well-priced for the time it saves and the flexibility it provides. Failing that you can still compile your panel.cfg manually as described.

I used FS Panel Studio to find default gauges that looked similar to the ones from the original aircraft I was basing my panel on. I was able to select, place and edit the panel in just 30 minutes! As I saved each addition or change, FS Panel Studio automatically added or edited the appropriate command in the panel.cfg file. Either way, follow your plan to place the switches and gauges as best as you can, remembering to save regularly.

After adding gauges and switches I felt that the panel background color wasn't quite right and I wished to change it to reflect the real world Cherokee 180 I was basing the panel on. It needed to be almost black, but not so black as to become transparent. I opened Paint and using the custom palette came up with a black with the RGB value of 10,10,10 - not quite true black. I then simply used the Paint 'Fill With Color' command to paint the panel section in this new color.

FIGURE 8: THE COMPLETE MAIN PANEL AND BACKGROUND COLOR AS DEPICTED IN FS PANEL STUDIO.

Adding a GPS

Even though we are making an older style panel, you may want to concede a little and place a modern GPS sub-panel in your design so that, when you click the GPS icon on the coaming, the Garmin GPS500 unit opens into a new window.

To do this we simply need to add the relevant information into the panel.cfg file. Firstly, add the following line to the [Window Titles] section:

Window01=GPS

Then after the [Windows00] section add the corresponding:

[Window01]
size_mm=456,378
window_size=0.3
position=8
BACKGROUND_COLOR=0,0,0
VISIBLE=0
ident=GPS_PANEL

gauge00=fs9gps!gps_500, 0,0

You may wish to change to size and position of the GPS to suit your taste.

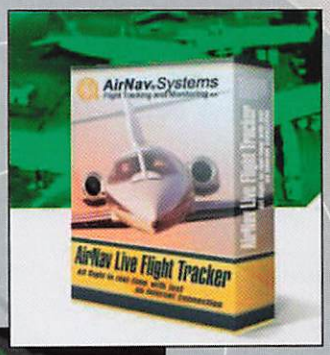
FS Panel Studio - Piper Cherokee 180 : Classic Paint Scheme 1 - "Main Panel" - Window00, C:\Program Files\Microsoft Games\Flig
File Edit View Options Gauge Tools Window Help

AirNav Live Flight Tracker

Graphical Flight Tracker for Aviation Enthusiasts

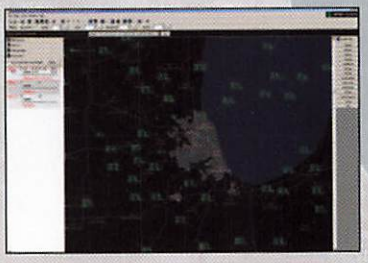
Are you an aviation enthusiast? Have you ever wondered if it is possible to find a graphical flight tracker to track real-time flights over the **United States**, **Canada** and **other regions of the world** with just an Internet connection? Well, it is possible, and affordable too, with our ***Flight tracker*** of real time flights software packages.

Our ***Live Flight Tracker*** software can track any flight, to and from any airport, within the United States and Canada. It is the most powerful flight tracking application available on the market today and is used by over twenty thousand users. Totally developed for the home user, ***AirNav Live Flight Tracker*** is something aviation enthusiasts have been waiting many years to possess and you can download the software and try it for free.



Features include:

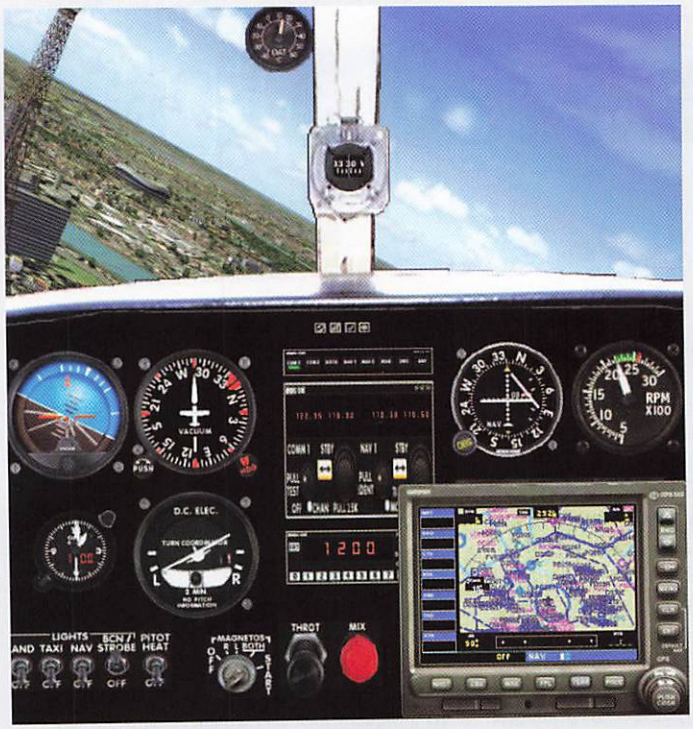
- Thousands of real-time flights
- Easy track a flight/fleet
- Superior graphics
- Live airport information
- Multi-window enabled
- Photos of tracked aircraft
- Updated weather



Now starting at just- $14.95!

To find out more... visit our web site:

WWW.AIRNAVSYSTEMS.COM



THE GPS SUB-PANEL IS NOW FUNCTIONING.

The Fun Part

That's it! You now have a fully functioning panel - well done! The most enjoyable part now follows - taking your panel/plane for a test ride. Try a variety of conditions so that you test the visibility during taxi, takeoff, approach etc. Take a note of any changes you wish to make and edit the panel.cfg file until you are satisfied. Typically, you may need to alter some gauge positions, forward views and default view parameters. Remember that you can make these 'on the run' by using the Aircraft Reload command. You may also wish to continue working with this panel and enhance the realism by adding more external views or extra sub-panels.

Remember that the major file libraries support panel design forums where you can get information, and there is usually someone who has had the same problem or question themselves and is willing to help out. Extra information can also be obtained by downloading Microsoft's FS2004 Panel Software Development Kit from **http://www.microsoft.com/games/flightsimulator/fs2004_downloads_sdk.asp**

You can download my version of the Piper Cherokee 180 panel from the Interactive Download Library section at **http://www.computerpilot.com**

I hope you have enjoyed this series and that you are inspired to go on to greater panels!

Happy designing... ✈

International FS Convention 2005 Report

BY FRANÇOIS A. 'NAVMAN' DUMAS

A tale of a great show and showmanship, wonderful new products and contacts, some disappointments, a major headache, marvelous people, painful travel, gossip, unexpected sunshine, ancient sea resorts, business, fun, air shows and ummmm... food... all to be repeated in 2006!

This whole 'adventure' started way back last year when I got a message from Mark Silcock, the energetic organizer of the Blackpool event, asking me if the organizations I represent would be interested in taking part in the show.

Mark Silcock organized this event in Blackpool for the first time a year ago. I did not visit it back then, but heard reports from acquaintances that it was a pretty good show, albeit a little 'out of the way', especially for international visitors. Attendance was good (over 4000 people at that time) and reports of the quality were favorable. Mark runs a travel agency in his 'real life' and is a long-time FS freak (like many of us). His goal is to build the IFC into the world's biggest FS event, and he is well on his way to achieving it. I would not know of any event today as big and professional as the IFC. We have the Dutch FS Weekends (some of the very first FS shows and already in place for almost 10 years), the AVSIM gathering, Birmingham's and the Paderborn show. But all of these are smaller both in terms of visitors and in terms of exhibitors.

The IFC had over 100 exhibitors this year and is expected to be some 40% bigger again next year.

Getting Things Ready

Back to the start... The trip across the Channel for me was uneventful and the weather looked nice. Upon arrival at Blackpool there was a frenzy of exhibitors unloading their cars and trucks at the back

entrance to the exhibition hall, and I could not get my Jeep real close. Fortunately I found our German simFlight crew to help me unload the heavy boxes and other equipment. Our Dutch team later joined them. Our booth was ready at about 9pm, and I was too tired to go out into town for dinner. The weather had changed near Manchester, with the temperature rising to 28 degrees Celsius, causing me one of my famous headaches. The headache was to keep me in bed until 10 a.m. the next morning, making me miss the opening speeches.

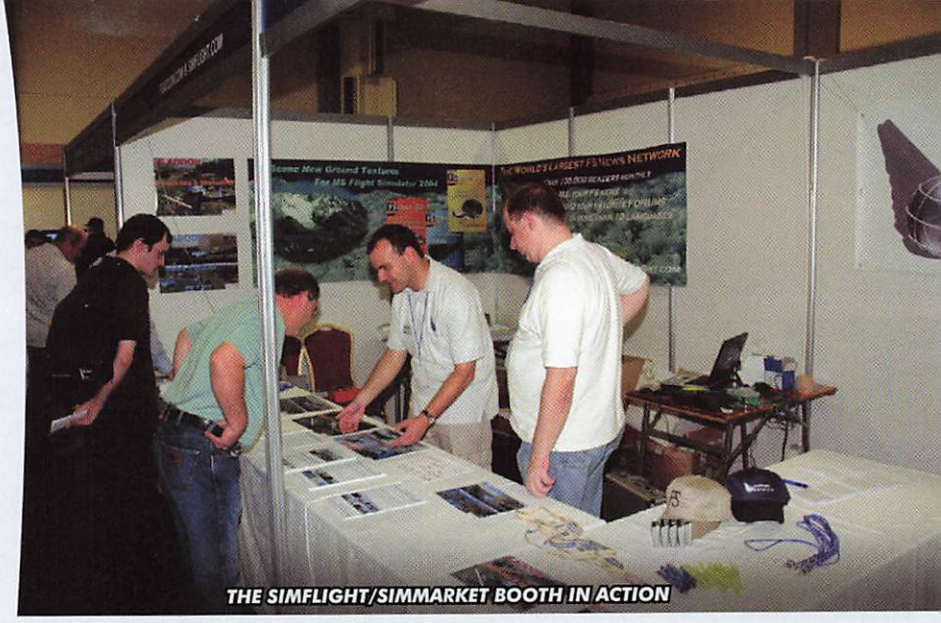
Day One

When I finally got dressed and out onto the exhibition floor, I found a good crowd of visitors already flocking around the various booths. Mark was making announcements over the PA system. Due to the bad acoustic of the place, his words were totally inaudible, and nobody had a clue what the announcements were about. He was telling the visitors to go visit the presentations across from the main hall, of course. These were well-visited in spite of the technical sound problems, so people must have read the website or the separate magazine printed especially for the show where the seminars were listed as well.

When talking to visitors I learned that they liked the seminars offered to a large extent. Speakers included people from IVAO, VATSIM, ITVV, Group Flight, Horizon Simulations, The simFlight Network and, of course, Microsoft. Various topics were addressed such as virtual air traffic control, cockpit building, FS communities, visions on the future of FS, and many more.

The presentation everybody had been looking forward to, the one of Microsoft itself, turned out to be somewhat of a disappointment for many, since they did NOT wish to announce the successor to FS2004 yet. They did show some pictures of new things to come (a wet runway with scenery reflecting into it and other shots that obviously were taken from a new version), but their 'slide' titled 'Announcements' only had a one-liner on it: **Nothing 'New' to announce today**. Insiders had already expected this to happen, but the majority of the audience had expected a little more. Especially since MS had really made a big effort in attending the show, with people from MS UK and from the US attending, bringing a wonderful set-up where the visitors could try their hands on the sim on a variety of machines and screens.

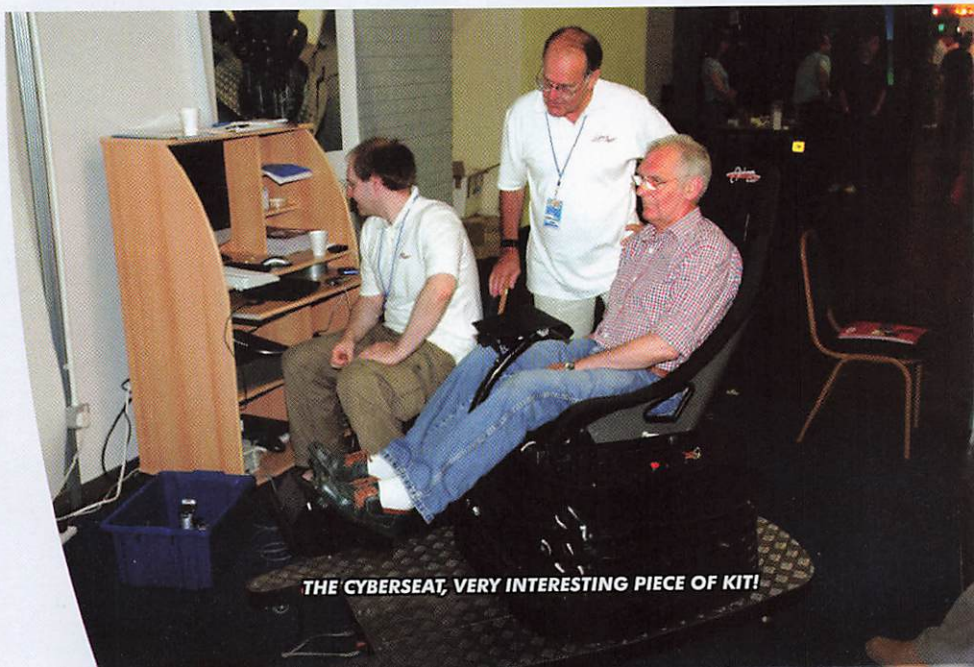
Walking around the exhibition hall on that Saturday afternoon, my personal view of where the hobby is heading was confirmed by the many new exhibitors of cockpit instruments, set-ups, panels, and even entire moving chairs. With the advent of FS2004 and the greatly enhanced scenery detail, it has now become much more



THE SIMFLIGHT/SIMMARKET BOOTH IN ACTION

BEACH TOURISTS WATCHING THE RED ARROWS JETS PERFORM

NO WORDS NEEDED


THE CYBERSEAT, VERY INTERESTING PIECE OF KIT!

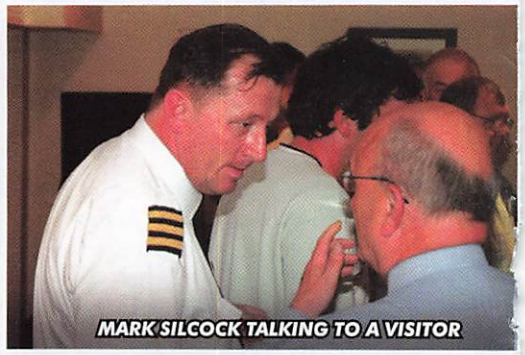
FLIGHT ILLUSION SHOWS OFF THEIR NEW GAUGES

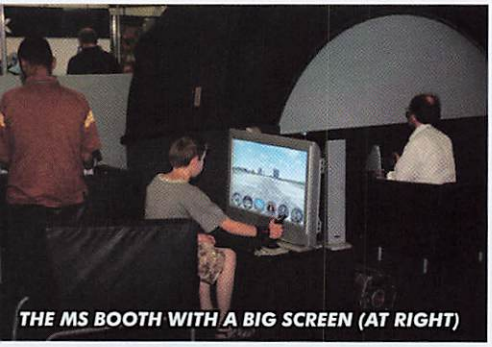
SEA GULL HAS REALLY NICE COCKPIT GAUGES TOO

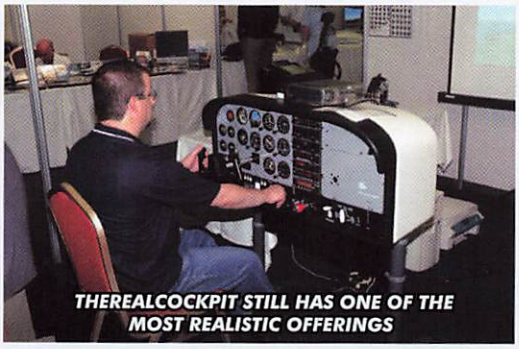
THE VATSIM BOOTH HAD LOTS OF VISITORS AS USUAL

HORIZON SIMULATIONS JUST PUBLISHED THEIR VFR NETHERLANDSS

ALTHOUGH NO "NEW" NEWS FROM MICROSOFT, THEY STILL MANAGED TO CAPTURE THE AUDIENCE


MARK SILCOCK TALKING TO A VISITOR


THE MS BOOTH WITH A BIG SCREEN (AT RIGHT)

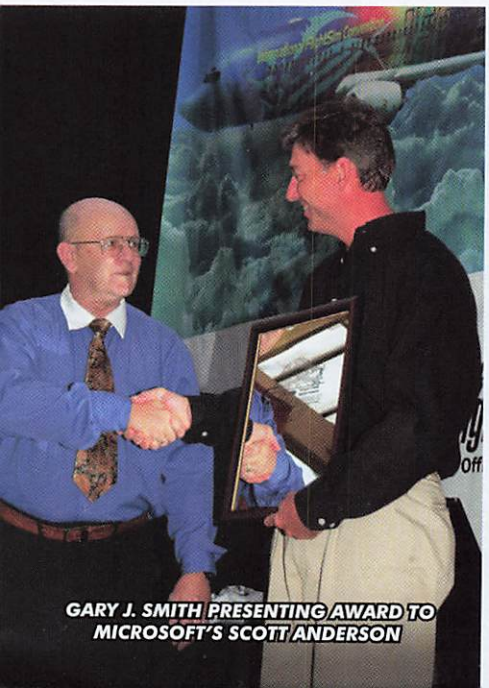

THEREALCOCKPIT STILL HAS ONE OF THE MOST REALISTIC OFFERINGS

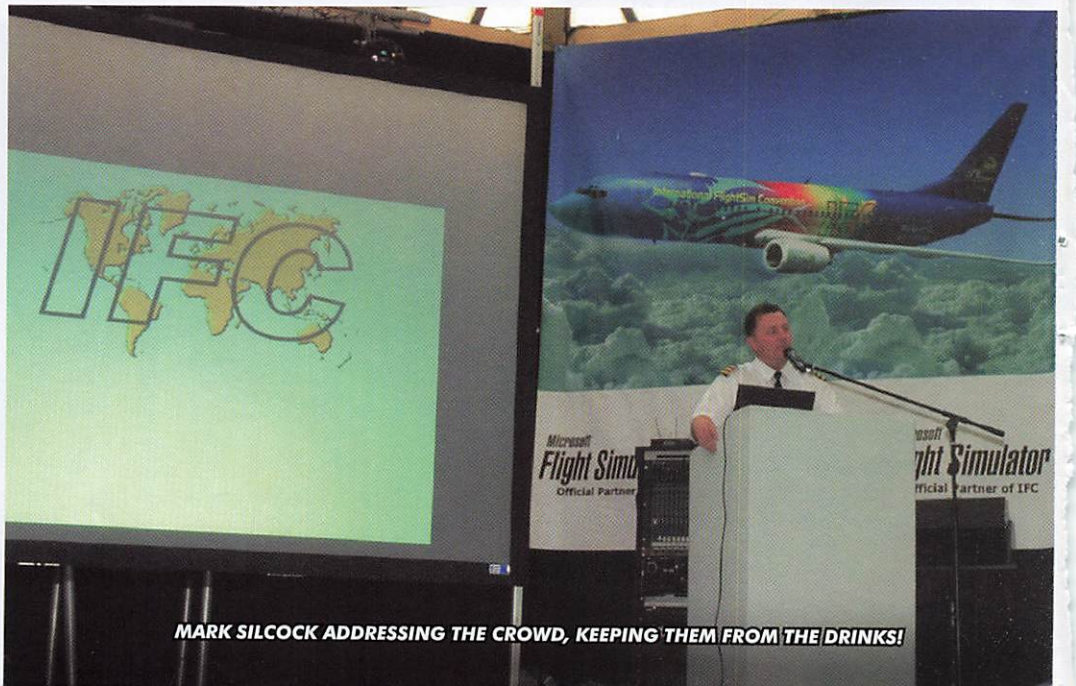
FSADDON WAS THERE WITH MISTY FJORDS, AND OTHER PRODUCTS ON SHOW

THE PRIZES FOR THE CHARITY LOTTERY

AN ENGLISH STREET MEANS FISH AND CHIPS

AUDIENCE ON SATURDAY NIGHT


GARY J. SMITH PRESENTING AWARD TO MICROSOFT'S SCOTT ANDERSON



MARK SILCOCK ADDRESSING THE CROWD, KEEPING THEM FROM THE DRINKS!

viable to fly VFR in general aviation planes (GA). That in turn has more people shying away from the obligatory 747's and other heavy iron, and toward having more fun in the Cessna's and thousands of other smaller planes - and that means a bigger 'market' for GA cockpit builders.

Where *The Real Cockpit* (TRC) started this trend a few years ago, and cornered the market to a large extent, followed closely by GoFlight, it is obvious now that the competition is heating up. Good for the consumers of course. Not only is there more to choose from, it will also put some pressure on all manufacturers regarding their pricing models. Which, of course, means that things will be cheaper in future.

Saturday Evening

I had agreed with our German editors to go and have a bite to eat a 7pm. They told me there was an Italian restaurant just 10 minutes down the boulevard. That turned out to be nearer 20 minutes... And it was a pretty 'poche' restaurant at that, not a 'fast' one. So after eating only half of my dinner, I had to run back to the hotel, having promised Mark to be present at his 'party'. Fortunately his speech was half an hour late... as was I.

Mark's speech was followed by Gary J. Smith handing out awards to Mike Stone, Pete Dowson and Microsoft for their contributions to this hobby of ours. Scott Anderson accepted the award on behalf of MS. I had a nice chat with Pete, met with Gary, and quite a few other people I only knew 'via' the Internet, notably a couple of good chaps from the Emma Field Forum on simFlight! Very pleasing indeed.

Later that evening the lottery's prize draw took place, with the proceeds going to charity. I am sure many people liked the 'disco', personally I am a bit too old for that...

Day Two

Sunday saw some glorious weather again, with lots of either very white or very red people crowding the boulevard and beach. For some reason the Brits do not get a sun tan easily. But all this was wasted on the exhibitors, busy informing the visitors about their products in specific, and FS in general. The seminars were well attended again, and equally well appreciated once more.

It did seem there were fewer visitors though on day two, and no doubt the glorious weather outside (so very untypical for the UK) was to blame for part of it.

Let's cover some of the products/groups/companies that attracted my special attention. First of all we have the *Cyber Seat*. A British company from Surrey was one of the last participants to sign up for the show and they were showcasing their movable seat. They already made moving seats for over 10 years, but only recently have started making them to connect to PC games such as rally and racing games, and now, too, for FS. I tried it... it works well, although there are things that need improving (this was their first try). The concept is very nice. More information can be found at **www.cyberseat.co.uk**

Also worth mentioning was the big booth Microsoft put up, with multiple computers and large screens providing the visitors a chance to try Flight Simulator for themselves. They also had one installed inside a big dome, giving the simpilot the feeling of sitting on an ultralight and seeing the world around and above him/her. They also hosted a wonderful 737 (I think it was) home cockpit. Microsoft's extensive presence in both booth and presentations certainly provided more confirmation of them being serious about continuing the FS franchise.

The Real Cockpit (TRC) from Holland was there of course. They are still the market leader in regards to full GA instrumentation, including panels, either as a complete set or in the form of separate 'kits'. They also showed the 'home version' of a Robinson helicopter. It wasn't working yet, but will be by the time you read this. It looked very nice indeed!

But TRC is not alone anymore. Several new competitors are popping up and increasing their offerings. Worth mentioning are Sea Gull, Flight Illusion, Engravity, but also Flightdeck Technology, VFR Cockpits from France, the Frasca simulator, and quite a few others.

But it was not only home cockpits on show. Many of the well-known distributors of software and hardware were around. Of course the IFC Partner, the simFlight Network and their parent company, simMarket.com had a presence. But also FSQuality from Austria, Just Flight from the UK itself, Aerosoft from Germany, Flightstore and more.

Worth mentioning in the scenery and utilities domain is Horizon Simulation with their range of VFR Photographic titles, Ruud Faber's FScene texture enhancements and FSAddon Publishing showing their Misty Fjords and other scenery titles.

This leads me to the presentations. I could only be at one place at a time, so the two presentations I witnessed myself were the first Microsoft one, and my own (covering the topic of FS Communities). But I heard from my editors and other visitors that all presentations were met with good applause and appreciation, and all were interesting enough to interrupt the walk around the main hall.

The Closing

The show was closing its doors at 4pm on Sunday, with – we thought – everybody rushing out onto the boulevard to witness the air show that was promised to take place over our heads. Or so we thought. This turned out to be a major disappointment... the show took place at the center of Blackpool's boulevard... not anywhere near the hotel. Even my 450 mm zoom lens could not get shots of the individual aircraft performing. We waited and waited for the Red Arrows (see photos), who did not show up until around 5pm or even later.

Their performance was magnificent of course... No complaints there. They even did the fly-past over the hotel as was promised. Unfortunately they regrouped somewhere over the Lake District before doing so, and we were taken by surprise when they came back, hence the bad photograph!

When we returned to the exhibition hall it turned out that nobody had witnessed the show but us and everybody and everything had GONE already, with three quarters of the hall already empty! When it then turned out my car had a flat battery (I apparently left the lights on somehow), I was not getting any happier. I had planned to drive down to London, get a night sleep, and catch the ferry in the morning. Because of all the problems and delays I found myself driving through the night to reach Harwich in time!

Despite the somewhat troublesome 'finale' for me, personally, the event in itself was a very successful one for most exhibitors and visitors alike. I am sure Mark will learn from it again, add improvements proposed by the various people, and make it an even bigger and better event next year. It's not easy organizing an event like this, and some hiccups are inevitable. It is a great credit to the flight sim community that Mark and others are willing to step up to the plate and hit a home-run for the benefit of flight simmers globally.

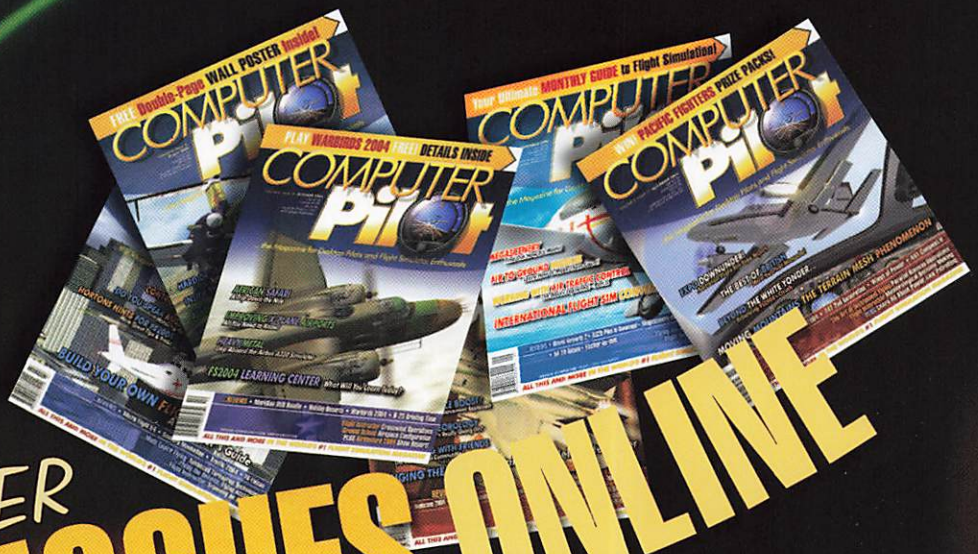
Check out **http://www.ifcblackpool.com** for more information on this year's event and plans for next year's convention. ✈

WWW.COMPUTERPILOT.COM
...the Magazine for Desktop Pilots and Flight Simulator enthusiasts

"THE PC-9 PARADE" *Photograph by Glenn Alderton*

COMPUTER PILOT

...the Magazine for Desktop Pilots and Flight Simulator enthusiasts


COMPUTER PILOT
FREE Double-Page WALL POSTER inside!
PLAY WARBIRDS 2004 DETAILS INSIDE
Your Ultimate MONTHLY GUIDE to Flight Simulation!
NEW PACIFIC FIGHTERS PRIZE PACKS!
BUILD YOUR OWN F...
FS2004 LEARNING CENTER
INTERNATIONAL FLIGHT SIM...
THE TERRAIN MESH PHENOMENON

ORDER

BACK ISSUES ONLINE

TODAY!

www.computerpilot.com

All major credit cards accepted.

TO ORDER BY PHONE/FAX

PC Aviator USA
For U.S./Canadian/European customers and all other countries not covered by Australian office.

Phone Toll Free: ***1-800-664-0033*** (within the USA)

Outside USA: 843-232-1160

Fax Orders: 843-232-1166

Back Issue Pricing:
Volume 1-7 Issues: US$3.00 per issue
Volume 8-9 Issues: US$7.95 per issue

Please add $1 per issue for US postage and $3 per issue for International postage. South Carolina residents add 5% sales tax

PC Aviator Australia
For Australian, New Zealand, Asia/Japan and South Pacific customers

Phone Toll Free: ***1-800-807-747*** (within Australia)

Outside Australia: +61 +3 +9532 8258

Fax Orders: +61 +3 +9532 8916

Back Issue Pricing:
Volume 1-7 Issues: AUD$3.30 per issue
Volume 8-9 Issues: AUD$9.85 per issue

Please add $1 per issue for postage within Australia. Postage fees to International locations may be higher

Volume 1-6 BACK ISSUE article index is available online at **www.computerpilot.com**

Volume 7 Issue 1

Reviews • Microsoft's Combat Flight Simulator 3 • Lago's FS Maintenance • Creative Audigy 2 + Inspire 6.1 Speakers • Aerosoft's Scenery Spain 1 & 2. Combat Flight Simulator 3 Mega Review. The latest version of Microsoft's combat sim range with this awesome 12-page review that covers everything you need to know before you reach for the CFS3 skies. The Pilot's Guide To Europe. The Best Of 2002. Looking Into the Wild Sim Yonder. Horton's Hints. Fly! II Freeware Roundup 2002. FS2002 Tutorial Series - A.I. Part I. X-Plane Tutorial Series: Creating Photorealistic Scenery. Multi-Engine Flying: Your First Charter Flight in the Chieftain. The Art Of Instrument Flying: Flying the SAAB 340 with Reginal Express. Flying the Heavies: Unusual Attitutes Around Alaska, PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 7 Issue 2

Reviews: Airport 2002 Volume 1 • Commuter Airliners/Eurowings Professional • VFR Photographic Scenery Volume 1 • Operation Barbarossa. The Birth of a Virtual Aircraft, Hardware Corner, Flying with ELITE, X-Plane Object Creation Revealed!, A.I. Part II, Mission Building in CFS3, Freeware Frenzy!, The Art Of Instrument Flying: Flying the SAAB 340 With Regional Express - Part 2 The Arrival. Ground School: "Swinging on Takeoff" Round Robin Adventures: JetBlue Standard Domestic Route, PLUS OUR REGULAR COLUMNS.

Volume 7 Issue 3

Reviews • Legendary Boeing 727 • Ready For Pushback 747-200 • SoCal Scenery for X-Plane • Radar Contact V3 • ATI Radeon 9700 Pro. The Pilot's Guide to the USA. Blue Side Down! Francois' Flying Tales: "The Art of Getting There". A Visit to Aeroplane Heaven. Forgotten Battles Preview. Operation Jericho: "A Memorable Mission". Bill Stack highlights the diversity and range of flight simulation products. Flying the Heavies: Stalling. Multi-Engine Flying: Final Approach. Flight Instructor: The Retractable Undercarriage. Flight Sim Doctor. Horton's Hints, PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 7 Issue 4

Reviews: German Airports Selection • Phoenix Simulation's Dash 8-300 • Orbiter Space Simulator • P-51 for Fly! II. Building A Virtual Flying Club, Aircraft Recognition Challenge, A View to a Kill: combat situational awareness techniques, Are you a Multi-Simmer? Virtual Aviation Photography: Taking Great Screenshots, Adolf Galland's Final Combat Mission, Hardware Corner, The Art of Instrument Flying: Position fixing , Freeware Frenzy, Ground School: The need For Speed, Round Robin: Atlantic Southeast Airlines Domestic Route, PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 7 Issue 5

Reviews: Scenery Canary Islands • Emma Field • Schiratti Control Center • Sybex CFS3 Official Strategies & Secrets Book. Flight Simming at Avalon in 2003, Long Haul Flights - Chicago to China, and Back! Keeping Order in the Flight Sim Skies, Maximizing PC Performance for Flight Simulation - The Memory Game… Citation Dreaming, The Bridge at Remagen - A Memorable Mission for CFS3, Flying the Heavies: Warning Systems, Multi-Engine Flying: Engine Failure In-Flight, Flight Instructor: retractable undercarriage, PLUS OUR REGULAR COLUMNS, Hortons Hints 4 FS2002, FS Doctor & CP Mailbag.

Volume 7 Issue 6

Reviews: VFR Photographic Scenery Vol 2-4 • Flight Sim Commander V6 • IL2 Sturmovik: Forgotten Battles. The Dream: Buying and Owning Your Own Aircraft, Creating Custom Panels in X-Plane. Under the Weather? Tackle the toughest of weather conditions. A Look into the Carenado Hangar. Hardware Corner: the latest and greatest flight sim hardware available for the PC. Round Robin: Explore the beautiful region of Alaska. Freeware Frenzy, The Pilot's Guide to Russia, The Art of Instrument Flying: various types of ILS approaches. Ground School: Gyroscopic systems, PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 7 Issue 7

Reviews: Iron Knuckles DC-9 • Eaglesoft Beechjet 400A • British Airports Vol 1-4 • London City 2003 • Flight Deck III. Centenary of Flight – 100 Years of Aviation, Glider Flying in Romania, Unusual and Dangerous Approaches III, Flight Simulator 2004 Preview, Hortons Hints 4 FS2002, Carrier Ops, Multi-Engine Flying: tips and tricks. Flying The Heavies: Situational Awareness. Reviewing the Reviews. Flight Instructor: Night VFR flying part 1 PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 7 Issue 8

Reviews: FS Traffic 2002 & Ultimate Traffic • Aeroplanner • Twin Otter. Crosscheck – Artificial Intelligence, Rush to Mt. Rushmore, Get Your Feet Wet – Flying the Amphibians, The Director's Cut - Movie Making in X-Plane, Combat Simulation – An Overview Part I & An Overview Part II. Hardware Corner, Round Robin Adventures; The Azores, The Art of Desktop Instrument Flying; IFR approaches, Ground School; The Constant Speed Unit. PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 7 Issue 9

Reviews: X-Plane Version 7 • ActiveSky wxRE • Piper Meridian • RAF Tornado. The 45th Paris Airshow Report, Into the Wild Green Yonder with Bill Stack, FS2002… What Can I Do? 747 Sim Australian Style, Setting Up a Website, Joining a Virtual Squadron, Flying the Heavies: The Two Pilot Crew. Multi-Engine Flying: The Fuel System. Flight Instructor: Night VFR Flying Part II, PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 7 Issue 10

Reviews: Microsoft's Flight Simulator 2004: A Century of Flight • PMDG's 737: The Next Generation • Abacus' FS Whirlybirds. Island Hopping Adventures, Crosscheck: Transitioning from FS2002 to FS2004, Flight Simulator 2004 Full Review. Round Robin Adventure, Flying High? Or Flying Low? Editing Sounds in FS2002/FS2004. Combat Sims: An Overview - Part III. The Art of Instrument Flying – The VOR Revisited. Ground School – The Fuel System PLUS OUR REGULAR COLUMNS & MORE.

Volume 7 Issue 11

Reviews: Megascenery USA 2004: Los Angeles/San Diego • Simcharts Version 3.0 • MiG 21 Interceptor. FS2004 Tips and Tricks, Cover CD Information, Crosscheck – Online Air Racing, FS2004's Love/Hate Relationship, Running the Hardware Gauntlet, The X-Plane Test Lab, Flying South America, Combat Flight Sim Training, AirVenture 2003 Report, Flying the Heavies: "Keep it Short and Simple". Multi-Engine Flying: Simple IFR Techniques You Can Use Anytime! Flight Instructor: night flying, PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 7 Issue 12

Reviews: Flight 1's Cessna 152 Package • Sybex FS2004 Official Strategies & Secrets • Visiontek Xtasy 9800 Pro • Just Flight's Memphis Belle. Sub-Zero Aviation: Flying around in icy Winter conditions, Tips for Flight Simmers, AVSIM Conference Report 2003, The Best of 2003, Going Commercial with X-Plane, Round Robin Adventures: Flying for WESTJET Airline, Mods and Rockers, You Get What You Deserve!: Virus protection, The Art of Instrument Flying: Partial Panel IFR, Ground School: Keeping a logbook, PLUS OUR REGULAR COLUMNS & MORE!

Volume 8 Issue 1

Reviews: Flight 1's Cessna 310 • Aerosoft's My Traffic 2004 • Just Flight's Battle of Britain. Crosscheck - Aviation Management Sims, AVSIM Conference Fly-In, The Good Fight by Bill Stack. Installing FS Add-ons, Hortons Hints for FS2004, Inside AirsideTV.com, Rotary Wing 102 - Having trouble flying the choppers? Accessing Flight Sim Newsgroups, CFS3 - 12 Months On. Be Careful What You Wish For… Multi Engine Flying - High Altitude Operations. Flying the Heavies - Keep a Good Look-out! Flight Instructor - Flapless approach and landing. PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 8 Issue 2

Reviews: UbiSoft's Lock On: Modern Air Combat • T-37 Tweet microSimulator • Abacus' Sea Plane Adventures. On A Wing And A Prayer – Ultralight Flying, Unusual & Interesting Airports, Lock On: Modern Air Combat Mega Review, X-Plane Parachutes, Flight Sim Piracy: Fact or Fiction? Round Robin Adventures: Ski trip to Innsbruck with Edelweiss Air. Understanding and Customizing AI Traffic in FS2004. Ground School: flying an aircraft for maximum range and endurance. The Art of Instrument Flying: Holding over a VOR station...PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 8 Issue 3

Reviews: Bihrle's First Flight: The Wright Experience • eDiemsnional's Voice Buddy • NaturalPoint's Track IR2 Head Tracker. Wings Over Japan, X-Plane Nuts & Bolts, Crosscheck: Getting it Wright! "Humoring the Stodgies": A novel about flight simming? Mike Pohl's Aces Flight Simulation Center, Multi-Engine Flying: Untraditional Airports, New Generation Monitors, Customizing AI Traffic for FS2004 Part II, Top Gun Fighter School: The A-10A Thunderbolt, Flying the Heavies: A 'Dirty' Night in Naples, Getting the Most from PMDG's 737NG, Flight Instructor: Formation Flying PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 8 Issue 4

Reviews: PC Aviator's Megascenery New York • Aerosoft's Scenery Canary Islands • UbiSoft's ACES Expansion pack • Dauntless Software's SimPlates 2004. Using the Garmin GPS, Round Robin: Boeing 737 Test Flight, Top Gun Fighter School: The Su-25 Frogfoot, Using Flight Sims to Learn from Real Accidents, Thrust Vectoring in X-Plane, Inside Project Open Sky, Ground School: Aircraft Stability, FS Short Hops, The Art of Instrument Flying: The Glass Cockpit, PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 8 Issue 5

Reviews: Lago's GeoRender Collection & Roaring Thirties • Just Flight's Battle Over Europe • Just Planes' European & Navair DVDs. Virtual Holidays: Flying Tenerife. When Things Go Wrong. Inside FlightSim.Com. Flying the Heavies: Heavy Jet Limitations. Top Gun Fighter School: The F-15 Eagle. Using the Garmin GPS Part II. Flight Instructor: Carburetor Heat. X-Plane Nuts & Bolts: Scenery Design. Jetliners Swarm the Flight-Sim Airspaces. The Real Virtual World. Multi-Engine Flying: Fuel Management Jetliner Style...PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 8 Issue 6

Reviews: Battle of the Mesh Feature: RealScene 2004, USA Extreme Landscapes, European Enhanced Terrain • EagleSoft's Cessna Citation X • X1 Software's Operation Fall Blau. Flying with Friend, What's Really Going On With X-Plane Weather?, Ringing the Bells, PC Maintenance & Video Performance Tips, Round Robin Adventures, It's Showtime, The Art of Instrument Flying: Flying IFR in Paradise. Hardware Corner, Top Gun Fighter School: The Anatomy of the Missile. Ground School: Spinning the Myth out of Stalling, PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 8 Issue 7

Reviews: Ilan Papini's Micro Flight V4 • Aerosoft's Scenery Manhattan • Just Flight's Traffic 2004 • Just Flight's FS Falcon. Building a Virtual Flight Deck, Controlled Flight Into Terrain, Behind Precision Flight Controls, X-Plane Websites Reviewed, Top Gun Fighter School – The MiG-29, Flying the Heavies – Flying Accidents, Horton's Hints for FS2004, "State of the Cart", Flying VFR in the Canadian Rockies, Multi-Engine Flying – Advanced Turboprop Techniques PLUS OUR REGULAR COLUMNS & MORE!

Volume 8 Issue 8

Reviews: RealScenery's Seattle-Tacoma for X-Plane • PMDG's Beech 1900D • NaturalPoint's TrackIR 3 Head Tracker • Just Flight's A340 Professional • FlightJack's SIMControl 2.0. Flying the Boeing 777 Simulator. Hardware Corner. Air Traffic Control – A Beginner's Guide. Round Robin Adventures; AMERIFLIGHT. The Virtual Australian Air Force. Discovering Alaska. Ground School; A spinning aircraft. The Art of Instrument Flying; ILS approach. Hard Drive Heroes, PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 8 Issue 9

Reviews: Just Flight's World Airports 2 • Aerosoft's A320 Pilot in Command • PC Aviator's Megascenery Northern California • Captain Sim's F-104 Starfighter • Aerosoft's Diamond DA-20 Katana • Fischer Air DVD. International Flight Sim Convention Report. New Kids on the Block – An introduction to several new flight sim companies. Air Traffic Control – A Beginner's Guide Part II. Starship Diaries – An Excerpt. Top Gun Fighter School – Air to Ground Missiles. Exploring X-Plane's Failure Modes. Building Better PCs for Flight Simulators. Flying the Heavies – Visual manuevering. Flight Instructor – Engine failure...PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 8 Issue 10

Reviews: Flight 1's Meridian DVD Bundle • MAAM-Sim's B-25 Briefing Time • Lago's Holiday Resorts • IEntertainment's Warbirds 2004. African Safari! The Flight Simulator Learning Center. Out with the Old… In with the New! Improving Your Favorite X-Plane Airport. Warbirds 2004 Review/Interview. A Visit to the Airbus' Miami Training Center. EAA AirVenture 2004 Report. Flight Instructor; crosswind situations. Ground School; Airspace. PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 8 Issue 11

Reviews: Wilco's CRJ 2004 • Flight1's Cessna 441 Conquest II • Vmax 747-200 2nd Generation • Shockwave's Wings of Power. "Of Mountains & Valleys". Australian Flight Simulation Expo Report. Recent Changes & Improvements to X-Plane. Enhancing FS2004 Clouds. VATSIM Convention 2004. The Best of British. The Art of Instrument Flying: Parallel Runway Operations. Power Line Patrolling. Flight Instructor: Meteorological Decision Making, PLUS OUR REGULAR COLUMNS & MORE!

Volume 8 Issue 12

Reviews • UbiSoft's Pacific Fighters • CH Products Throttle Quadrant USB • PILOT's FS Global 2005 • Pacific Fighters. AVSIM 2004 Conference Report. Learning from Accidents. X-Plane Aerobatics. Medivac – A Day with the Life Flight Rescue Team. Round Robin Adventures - Jetstar. The Smithsonian Institute. Ground School – FAQs. The Art of Instrument Flying – FMC Basics...PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 9 Issue 1

Reviews: Flight 1's USA Roads • Aerosoft's FS Commander V7 • Flight 1's ATR72-500 • Just Flight's RAF Vulcan. Cockpit Building Series Part II – Pedals and Monitors. Power-Line Patrolling II. Bill Stack: Gauging the Devices. 3.5 Hours in an Air Canada A330/340 Simulator. Round the World in 80 Days – C172 Style. Supercharging Pacific Fighters. The Art of Instrument Flying – FMC Basics Part II. Flight Instructor – Weather Forecast Decoding. Gauging System Performance. Flying the Heavies – Flying the Maldives...PLUS OUR REGULAR COLUMNS AND MORE!!!

Volume 9 Issue 2

Reviews: PSS Concorde • Abacus FS Flight Ventures • Bryan York's FS2Crew • REALAIR SIMULATION'S Spitfire. Flying the Maldives: What Went Wrong? Cockpit Building Series – Pedestals and Panels. Aircraft ID Challenge II. Round the World in a C172 – The Trip Home. Hardware Corner – latest joysticks and controls from Saitek. The 727 Project. "Hit the Deck!" – Flying UbiSoft's Pacific Fighters simulator. Battle of the Airlines. The Art of Instrument Flying – FMC Basics Part III. Round Robin Adventures – America West, PLUS OUR REGULAR COLUMNS & MORE.

Volume 9 Issue 3

Reviews: Aerosoft's Austria Professional 2004 • NaturalPoint's Vector 6 Expansion • Australian Simulation's Piper Warrior II / III. The Making of a Scenery Add-on. Battle of the Airlines II. Cockpit Building Series – Back to Basics. Learning from Accidents – 737 Overrun. "What FS10 Needs". My Flight Sim Closet. "HELL OVER HIGH WATER" – The Grumman Hellcat. Flight Instructor: "Get Real" – PPL Training. Ground School – All About the GPWS. The Next Dimension – Online ATC. Hazards when Power-line Patrolling...PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 9 Issue 4

Reviews: PC Aviator's MegaScenery Pacific Northwest • Assorted Flight Simulator Books • Aerosoft's U.S. Airports 1 • Flight 1's 727 • Laminar Research's X-Plane 8. Cockpit Building Series – Switches, Encoders & Computers. Free Flying in the Pacific Northwest. "Middle Earth" – Exploring China. Meigs R.I.P. Weapons of the Rising Sun – The A6M Zero. Round Robin Adventures – Canadian Forces Regular Service. Flying the Heavies – Operating at Difficult Airports. "Get Real" PPL Series - Part II. Ground School – SIDs and STARs Explained. PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 9 Issue 5

Reviews: PC Aviator's MegaCITY San Francisco • Air Nav System's FS Live Traffic • FeelThere's ERJ 145 Pilot in Command • Just Flight's Spitfire. Setting Challenges in Flight Simulator. D.I.Y. Scenery. Seaplanes, Flying Boats, and X-Plane. Microsoft's Punching Bag. The River Approach to DCA. Cockpit Building Series. The 2005 Avalon Airshow Report. "Whistling Death" – The Bristol Beaufighter. "Get Real" PPL Series Part III – FS2004 Private lessons. Ground School – Flying with Tailwinds. Flying the Heavies – Flying the North Atlantic, PLUS OUR REGULAR COLUMNS & More!!!

Volume 9 Issue 6

Reviews: PC Aviator's MegaCITY Denver • Level-D Simulations' 767 • Flight 1's Skyhawk 172R • Joel DeYoung's Squawkbox 3 • Eagle Dynamics' Flaming Cliffs. Energy of Flight! D.I.Y. Scenery II, Cockpit Building Series – Sub-Panels, The Golden Age of Airliners, Freeware Frenzy Returns! A Walk on the World Wide Web, Flying Under Control, Flying the Heavies – A Review of Navigation, Round Robin Adventures– Alaska Airlines 737, Flight Instructor – PPL Series Part IV...PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 9 Issue 7

Reviews: Wilco Fleet: A380 • FlightSoft's Fly to the Caribbean • Just Flight's Airliner Pilot • Tim Exley's Australian X-Plane Scenery. Fly By Lights! Le Tour de France. D.I.Y. Scenery Part III. Enhancing your X-Plane Models – Part I. Horton's Hints for FS2004. Flying the F-15 "Under the Radar". "How To" Articles. Cockpit Building Series: Sub-Panels Part II. Private Pilot Training Part V. Ground School: Critical Point. Flying the Heavies: Basic Flight Instruments PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 9 Issue 8

Reviews: Shockwave's Battle of Britain II • PC Aviator's MegaCITY Dallas / Ft. Worth • Flight 1's Pilatus PC-12. D.I.Y. Panel Building - Part I. Flying the Virtual Cockpit. Enhancing your X-Plane Models – Part II. Free Flying in Hawaii – Part I. Destination: North Pole. Fractional Ownership Airlines. Unusual and Dangerous Airports IV. Hardware Corner. Flight Instructor – The Science of Trim. Ground School: Engines. Round Robin Adventures – transport route in Central Europe. PLUS OUR REGULAR COLUMNS & MORE!!!

Volume 9 Issue 9

Reviews: PC Aviator's Piper Dakota • Aerosoft's Airbus Holiday Destinations • GoFlight's GF-RC Rudder Pedals • Graphsim's Falcon 4: Allied Force. Free Flying in Hawaii - Part II. Who's In Control? – An Overview of ATC. The 46th Paris Airshow 2005 Report. Training for an Instrument Rating – Part I. Thunderbirds are GO! Enhancing your X-Plane Models – Part III . DIY Panel Building II. Ground School – Checklists. Flight Instructor – Holding Made Easy. Flying the Heavies – Aircraft Performance PLUS OUR REGULAR COLUMNS & MORE.

The Ups and Downs of BOB II

A tutorial on takeoffs and landings…

BY DEREK "BARON" DAVIS

There are many facets to Battle of Britain II - Wings of Victory, but for me the most challenging aspect of the whole sim, when it is configured at its most realistic setting, lies in the take-off and landing of the aircraft themselves. Of the five flyable aircraft, the Spitfire, Hurricane, and Bf109 are the most challenging to master in this respect.

Some would go so far as to say that, in fact, taking off and landing in BoB II is more difficult than it is in real life. Be that as it may, if you want to master flying in BoB II you will have to learn how to get the aircraft into the air and back on to the ground again in one piece! So the aim of this article is to offer some insights and personal experiences into the ups and downs of BoB II.

Takeoffs and landings are particularly difficult in BoB II for a number of reasons. Firstly, there's the high-fidelity flight modeling of the aircraft that faithfully replicates the movement and motion, under various conditions, of the aircraft being modeled. Secondly, and more to the point, landing and taking off is made particularly problematic by the inherent design of the narrow-track undercarriage of both the Spitfire and Bf 109.

Factors that you will have to contend with include issues such as torque, 'wing-drops', ground loops and bounces. All these have to be understood and either controlled or, in some cases, avoided if you are to ultimately avoid frustration.

It should be noted that when flying BoB II, I always set the 'Flight Options' to Maximum. This means that the following options are applied: Flight model - **Realistic**, Engine Management - **Manual**, Power Boost - **Off**, Wind Effects - **On**, Wind Gusts - **On**, Airframe Stress - **On**, Torque/Slipstreaming - **On**, and 109 Fuel Capacity - **Realistic**. So with this in mind let's take a look at perhaps the most challenging of the three aircraft to take off and land, the Supermarine Spitfire Mk. 1

The Spitfire

As with its main adversary, the Messerschmitt 109, the Spitfire is majestic and graceful in the air, but rather clumsy, and more like a duck out of water when on the ground. This is due to the design of its rather narrow-track undercarriage, which makes it quite unstable when taxiing or on takeoff. When it comes to takeoff, you will have to contend with torque, which is the force of the air produced by the spinning propeller, hitting the left side of tail of the aircraft, which in turn results in the nose of the aircraft swinging to the left. This has to opposed by a judicious use of opposite rudder.

When it comes to landing, the biggest challenge is facilitating a gradual and smooth approach and landing without incurring a bounce back into the air... or worse! So the question is; how do we overcome these issues and consistently a make successful takeoff and landing?

Getting into the air

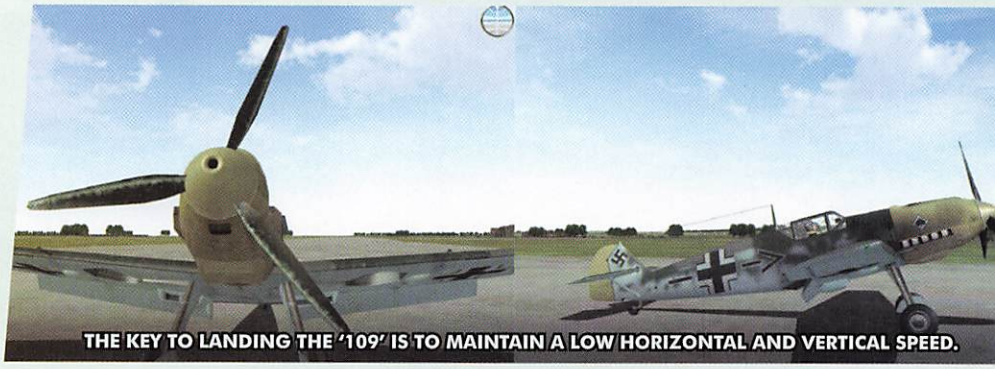
Let's start by going through the manual engine start-up for the Spitfire. I will present the start-up sequence in a numbered format to aid reference.

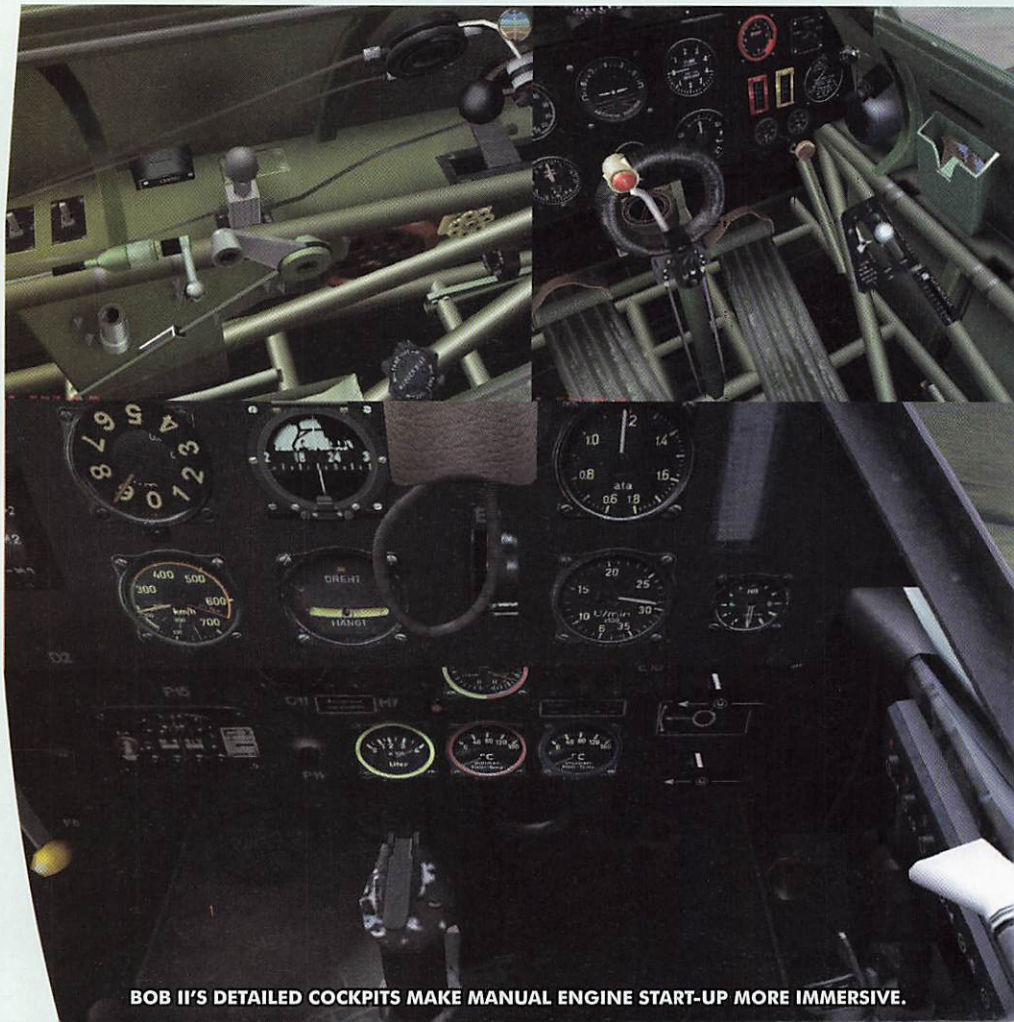
1. **Right-click your mouse to activate the clickable cockpit mode. This will allow you to manually operate a limited number of levers and switches contained within the cockpit.**
2. **Click both magneto switches to the up position in order to turn them on. These are situated on the bottom-left of the instrument panel.**
3. **Click both fuel cock switches to the up position to turn these on. These are situated on the bottom-right of the instrument panel.**
4. **Advance the throttle about a quarter of the way forward.**
5. **Press the Primer Pump 2-3 times to prime the engine. This is located next to the fuel cocks.**
6. **Make sure the propeller pitch is fully forward.**
7. **Make sure the brakes are both on.**
8. **Press and hold down the Start button, located above the fuel cock, until the engine starts and continues to 'tick over'. Occasionally, the engine will make a 'false' start, with the propellers beginning to rotate, but eventually coming to a stop. If this happens, try the start button again. If this also fails, prime the engine a couple of more times then press the start button once more.**

Now, the next sequence of events is crucial to a successful takeoff. As a special note, if you are an owner of the TrackIR I would suggest you disable it for the duration of the takeoff run. This is because you want to minimize movement so you can concentrate purely on staying aligned straight with the runway without any peripheral distraction.

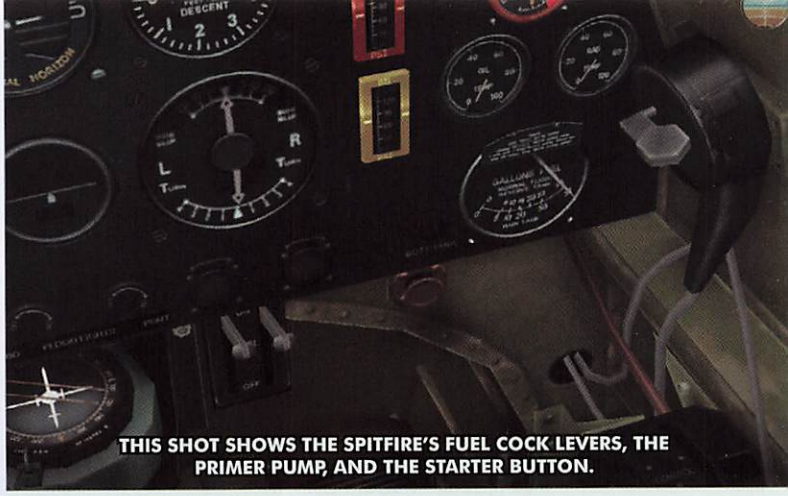
So, when you are ready to start your takeoff run, release your brakes and slowly advance your throttle while at the same time applying a little pressure on your right rudder to counter any onset of torque. While doing this it is important that you make sure that your takeoff run is as straight as possible.

THE SPITFIRE IS GRACEFUL IN THE AIR, BUT ACKWARD ON THE GROUND.

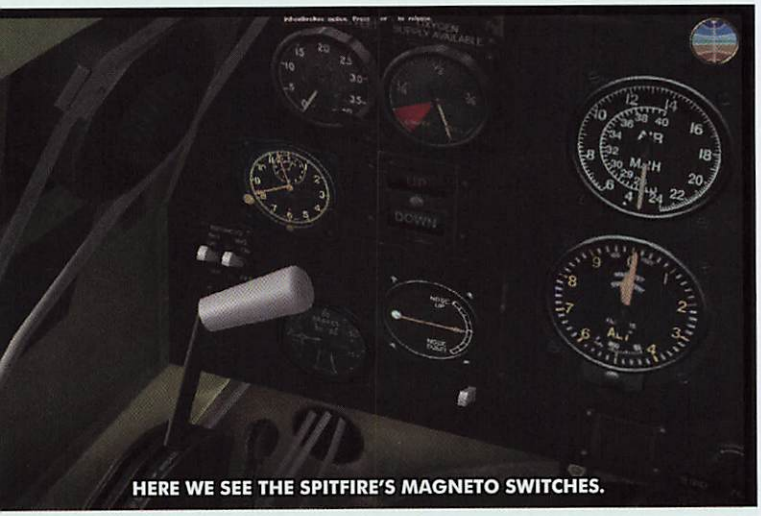

THE KEY TO LANDING THE '109' IS TO MAINTAIN A LOW HORIZONTAL AND VERTICAL SPEED.


BOB II'S DETAILED COCKPITS MAKE MANUAL ENGINE START-UP MORE IMMERSIVE.

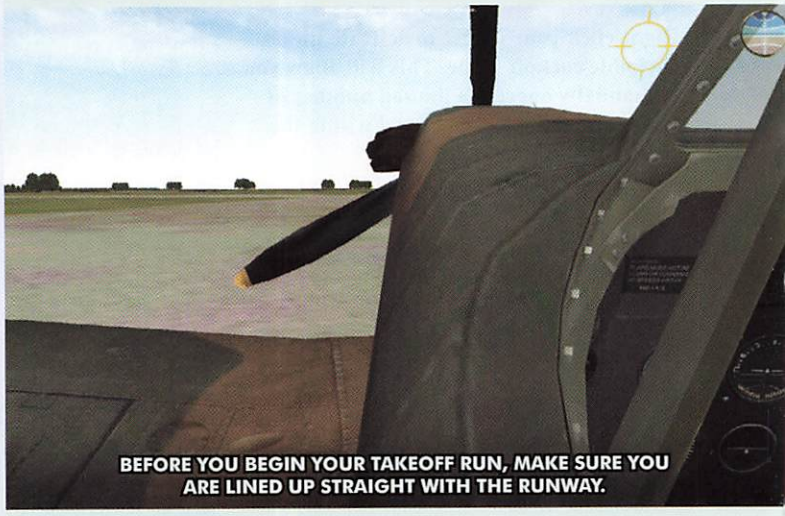
THE HURRICANE'S WIDE-TRACK UNDERCARRIAGE MAKES FOR A MORE FORGIVING AIRCRAFT.



THIS SHOT SHOWS THE SPITFIRE'S FUEL COCK LEVERS, THE PRIMER PUMP, AND THE STARTER BUTTON.



HERE WE SEE THE SPITFIRE'S MAGNETO SWITCHES.



BEFORE YOU BEGIN YOUR TAKEOFF RUN, MAKE SURE YOU ARE LINED UP STRAIGHT WITH THE RUNWAY.

TURNING ONTO FINALS!

AIRBORNE!

THE BF109 IS PARTICULARLY DIFFICULT TO LAND IN BOB II.

THE BF109 ON FINALS.

The longer you leave the aircraft to deviate from the center of the runway, the more difficult it is to get back on track. If it is allowed to swerve for too long, in an effort to correct it, you run the risk of ground looping the aircraft. So caution is the watchword here!

As you advance down the runway keep an eye on your course, and make gentle corrections with the rudder. As speed increases, torque will begin to pull the nose to the left, so your rudder corrections will be predominantly to the right.

As you advance the throttle further, and the speed increases, you will notice the starboard wing has a tendency to drop, particularly when you 'kick in' opposite rudder. So as you apply right rudder, the thing to do is to also apply a little left aileron; while at the same time applying a little back pressure on the stick in order to keep the tail down for as long as possible. If you just apply left aileron you will find that wing is more difficult to 'pick up'; ending in the wing 'slicing' into the ground. In addition, back pressure on the stick makes it easier to control the direction of the aircraft in the initial stages of the takeoff run. All this might sound a little involved when described in words, but you will find it is easier to do in reality.

Once the aircraft is going straight and has built up enough speed, gently raise the tail, making minor rudder adjustments where necessary. Wait until your speed has reached around 80-85 MPH and gently begin to pull back on the stick, making sure not to jerk it back too steeply. Maintain a positive attitude until things settle down and then raise your gear. If you have a TrackIR device you can now re-activate it.

Takeoff in the Spitfire is all about smooth movements and anticipation of events. Always try to think ahead of the aircraft!

Getting back on to the ground

Now that we've got you into the air we have to get you back down safely in one piece! The key to successfully landing the Spitfire in BoB II is to adopt a long and gradual approach to the runway, or airfield if none is present. In addition, it is important that your speed once the threshold has been crossed is just above flying speed, so that once you start to fire the aircraft, it will settle on the ground and stay there. So, let's go through the procedure for landing the Spitfire in more detail.

1. **On the downwind leg, lower the the gear when your speed has dropped below 150 MPH. As you lower the undercarriage you will notice that the nose will drop. Add power as necessary to maintain a speed of around 140 MPH. Keep your height at around 400 feet. Do not lower your flaps at this stage. Lowering the flaps on a Spitfire acts more like an airbrake and thus makes the aircraft more difficult to handle.**
2. **Again, owners of the TrackIR should de-activate their device when on final approach. As you turn on to final approach, line up with the runway as early as possible. Reduce your speed down to around 90 MPH. If you find it difficult to get your speed down, try opening the canopy. This will produce drag and hence lower your forward speed.**
3. **Aim to land the aircraft at a point just forward of the threshold. Your descent should be smooth and gradual with your rate of descent being as low as possible.**
4. **By the time you reach the threshold your speed should be around 85-90 MPH.**
5. **As you cross the threshold begin to flare the aircraft, making sure to keep the wings as level as possible. The Spitfire has a relatively low wing loading so it will take longer than you think to settle on to the ground.**
6. **Keep holding the aircraft off the ground until you are below flying speed, at which point the aircraft should settle on to the runway (which should be around 75-80 MPH). At this point it is important to keep the wings level. Your aim is to land on both wheels at the same time in order to avoid a ground loop.**
7. **Once on the ground hold back the joystick to keep the tail down while controlling your direction with the rudder. In addition, as a tip, also lower your flaps once the wheels touch the ground as this will further help to keep the aircraft on the ground while reducing your speed at the same time.**
8. **Finally, gently apply brakes to bring your ship to a final stop!**

The takeoff and landing procedure for the Spitfire also applies to the Hurricane, so just apply the above techniques when flying the latter. In fact, because it has a wider-tracked undercarriage, you will find the Hurricane easier to handle on takeoff and landing.

Landing the 109 - A special case

When it comes to the Bf109, the takeoff technique of the Spitfire should also be applied to the '109'. However, landing the '109' is even more difficult than landing the Spitfire. So here are some hints and tips to make things a little easier.

1. **Try to land on the tarmac (if available) at an airfield because the '109' is prone to bounce and ground loop at the slightest imperfection in approach or on the ground.**
2. **Final approach should, again, be smooth and gradual and be at a height that will allow you to touch down at a point just beyond the threshold.**
3. **Avoid the use of flaps as you approach the runway. If you do need to use flaps, apply just one notch. Control you speed with your joystick and height with your throttle.**
3. **As you cross the threshold, your speed should be around 160-170 KMH.**
4. **As you cross the threshold, begin to flare gently while keeping the wings level.**
5. **When you make contact with the runway, pull the stick back to keep the tailwheel down.**
6. **If required, lower your flaps one notch to help to induce drag and help to keep your 109 on the ground.**
7. **Finally, gently apply brakes.**

Recommended speeds

Before you can execute a successful takeoff and landing you have to know what the various speed thresholds are. So here's a list of recommended speeds for the various flyable aircraft in BoB II.

Spitfire
Takeoff - 80 MPH
Maximum flaps/gear extension - 140 MPH
Landing approach - 120 MPH
Landing speed - 80 MPH

Hurricane
Takeoff - 80 MPH
Maximum flaps/gear extension - 140 MPH
Landing approach - 120 MPH
Landing speed - 80 MPH

Bf 109
Takeoff - 160 KPH
Maximum flaps/gear extension - 260 KPH
Landing approach - 210 KPH
Landing speed - 160 KPH

Takeoffs and landings in any of these aircraft will take patience and a lot of practice. However, be assured that your perseverance will be rewarded and your BoB II sessions will be that much more of a satisfying and realistic experience! ✈

PREMIER AIRCRAFT COLLECTION:

BONANZA F33A REVIEW

BY GENE DAVIS

Carenado has been around for a few years now and they have built a nice reputation for turning out good quality payware at a decent price. The Bonanza F33 has been around for quite some time, since FS2002, and has been upgraded to FS2004 just after it was released. PC Aviator have teamed up with Carenado to offer, for the first time, a boxed version of the latest Bonanza F33A build. Let's take a closer look…

The Package

Delivery of your very own Bonanza F33A will be on one single CD and is packaged in a nicely decorated DVD style box. Along with the aircraft you will find a small, but informative 11-page manual that includes installation information, checklists *(checklists are also available via the kneepad in MSFS)* and performance specs. Installation of the Bonanza is relatively simple, as you just drop the disc in your CD tray and follow the on-screen prompts. The Bonanza comes in only one livery. The one thing I would really like to see is that when companies re-release a title on disk they should offer more, like include the V-tail version or simply include more liveries, this would give current owners something to look at if they already own the download version. Free repaints are available online to use with the aircraft however.

The Aircraft and Flight Model

The aircraft alone is highly-detailed and offers some really nice eye candy with all of its moving parts. I especially like the sensor probes on the rear portion of the wingtips. I found that I really enjoyed the views out over the wings; this view really seems to capture what this aircraft is all about, and at times almost has a realistic feel to it.

The exterior model is well detailed, but not to the point where it will affect your system's performance, and offers enough variety that you won't be disappointed. Animated gear, flaps, and aircraft control surfaces are all included, as well as some excellent exterior and interior lighting.

THE BONANZA F33A

PARKED AT KYKM

TAXI TO POSITION AND HOLD.

THE 2D COCKPIT

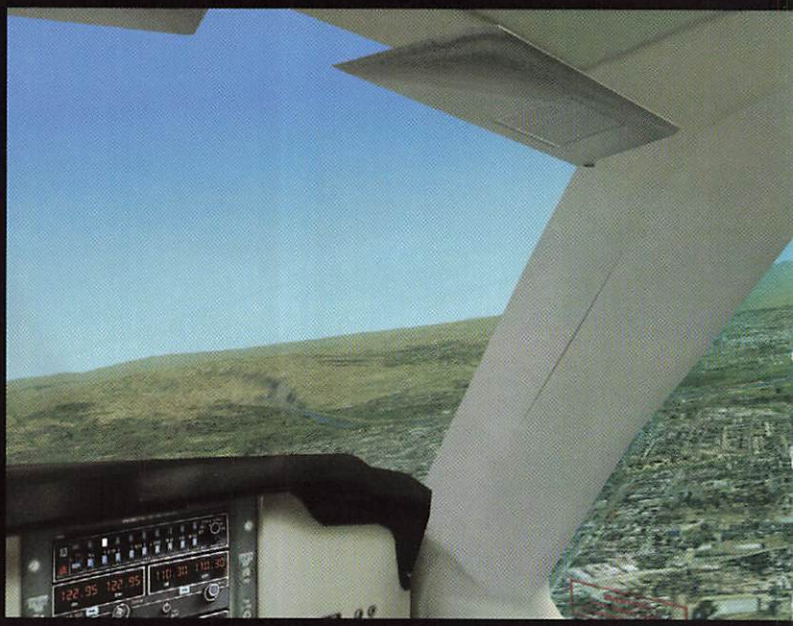
VIRTUAL COCKPIT

REAR CABIN

2D COCKPIT WITH YOKE CONTROL DISPLAYED

CHECK OUT THE DETAIL!

LOOKING LEFT OUT OVER THE WING



LOOKING FORWARD RIGHT

LOOKING RIGHT

LOOKING IN FROM OUTSIDE

The flight model is superbly done; the plane flies very well in the MSFS environment and offers a great flight experience to the MSFS user. You will find that by changing fuel and cargo weights that it will significantly change the way the plane flies. As for an all-around aircraft to fly, this plane is very pilot friendly and almost flies itself at times.

When you are taking off, the plane performs well and has a solid feel to it, as well as a very realistic takeoff and liftoff run. The importance of compensating for engine torque and other flight characteristics must be considered when flying the F33A, as well as following checklists and performance specs.

Carenado are famous for producing great looking aircraft that also fly very well. Visually, the F33A is right on the money. The external aircraft textures are top quality and you could be mistaken for thinking some screenshots were actually real-world photos! The attention to detail and to making the aircraft look as realistic as possible certainly must have consumed some development time. Well done in this area.

The F33A Flight Deck

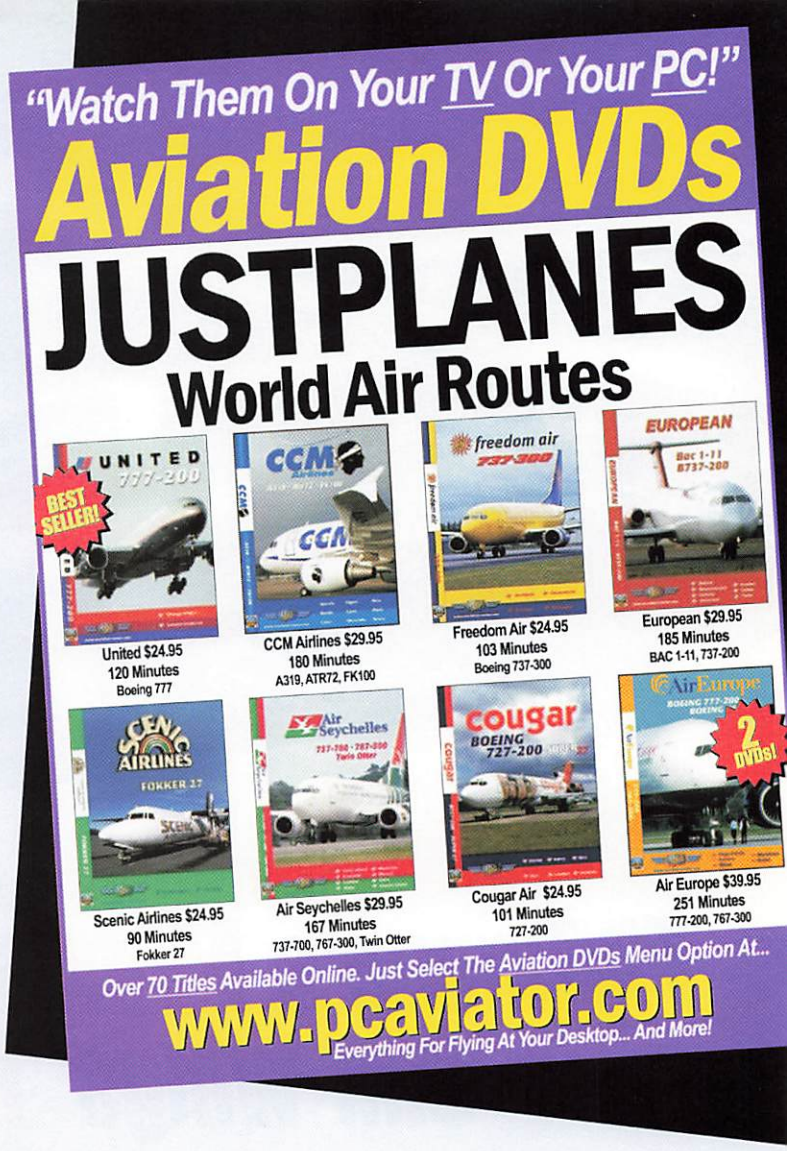
The cockpit is nicely done; you will find that both the 2D and the virtual cockpit have a lot to offer. The 2D cockpit has a nice array of avionics and, along with the default GPS, this plane is ideal for either VFR or IFR flying. The 2D cockpit has a relatively nice feel to it. It is easy to get around and very easy to find things when you are in a pinch. The cockpit layout is pretty basic (like in the real airplane) and if you are familiar with general aviation aircraft, you should be able to find your way around easily. You will discover accompanying secondary sub-panels that will offer you a realistic radio stack and an engine control panel. I personally like the look and feel of the 2D cockpit; it has an aged and "used" feel to it and goes well with this aircraft.

The autopilot on the F33 is relatively simple and easy to understand, though I would have liked to have had better placement of it in the cockpit, as it currently sits near the lower left corner of the cockpit. My only complaint about the cockpit instruments on the 2D panel is that they can be relatively tough to see at times, especially during a night flight. The instruments should have been bigger, as there would have been room on the panel to make them larger, however, this may have taken away from the accurate look of the panel. Your answer here is to simply use the VC if you are having difficulties reading the instruments, just make sure to turn your VC detail up. Or increasing screen resolution may also help.

The virtual cockpit, though not as detailed as some of the more current aircraft packages available, is nicely done; it essentially puts you into the airplane and offers a completely "clickable" environment, thus allowing you to fly it completely from the VC if you choose to do so. If you have *Active Camera*, be sure to move around the cabin a bit and check out the passenger area as well as the perspective from the co-pilot's seat.

The Sound Suite

The sounds of the F33A are what it's all about. Without a decent sound suite many packages would be left out to dry. Carenado has captured the true essence of the F33A with their sound package; I found that by cranking up your subwoofer and turning the volume up, you will be delightfully surprised at all the little sound extras that were included, as well as adding some feeling to the airplane.



Flaps and gear sounds along with the internal cockpit and warning sounds are also included and match the real world offerings. The startup and shutdown sounds are also well generated, especially the startup sequence. You can always tell how well an aircraft add-on has been made after you try the startup for the first time. For me this was the biggest seller and the aircraft package delivered the goods in this department.

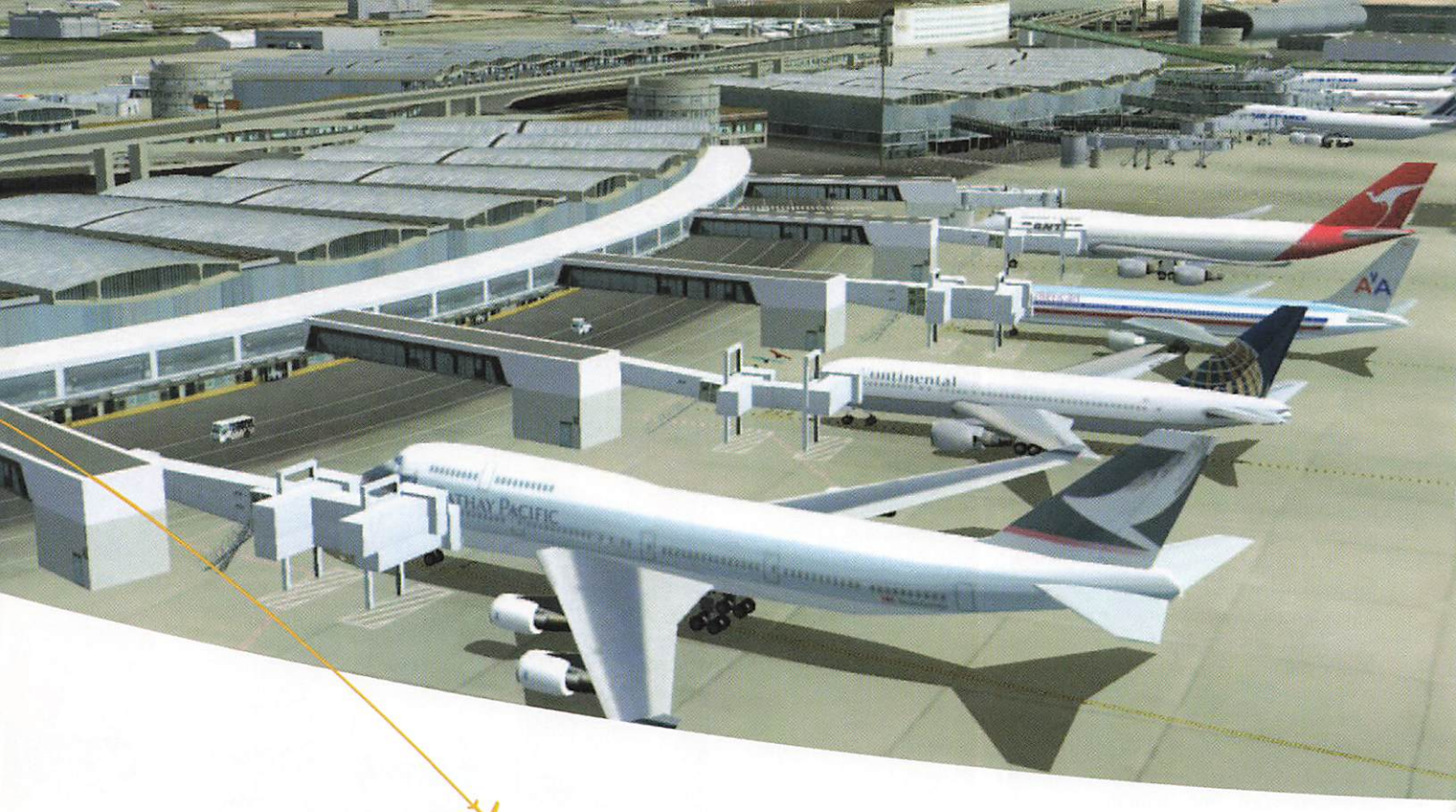
Performance

The biggest thing with these smaller planes is that they offer some excellent performance on both new and old computers. I run mine on both a P4 2.4 and a P4 3.0, and there is very little difference in how well the plane performs on each computer. This aircraft is not bogged down with so much detail that it won't run well on low-end machines.

Conclusion

If you already own this plane and simply have a desire to have it on disk then here is your chance. Now, if you have never tried a Carenado plane and want to give one a shot, this is a great one to start with, and well priced at US$22.95. I am glad to see a lot of these download offerings being updated and re-released on CD rather than just disappearing off into the sunset. The boxed add-on market is so dominated by heavy jet titles at present that the smaller planes are being sorely missed!

The Bonanza F33A boxed edition is published by PC Aviator and available to order via their online website at **http://www.pcaviator.com**



FlyTampa's Midway & Sim-wings' Paris CDG Reviews

BY DOUG HORTON

This review features FlyTampa's *Midway* and Sim-wings' *Paris CDG* scenery add-ons for FS2004. These are both commercial (payware) products that are available by downloading. I chose to review these sceneries because they're both recent releases and they feature similar design and animation features. Additionally, they both are designed with Gmax® and have been developed and programmed by individual authors.

Midway Scenery

I remember how impressed I was with the first Gmax scenery package developed by FlyTampa's founder and developer Martin Brunken. Martin's first scenery was Tampa International Airport (KTPA); hence, the FlyTampa company name. Since then, Martin has developed impressive scenery packages for Miami International (KMIA), San Diego International (KSAN), Dubai International (OMDB), and San Francisco International (KSFO). When I installed the original Tampa scenery I was most impressed by Martin's animated service vehicles in continuous motion all over the airport and the moving shuttle trains.

The real Midway airport has experienced extensive construction over the past few years to provide new terminals and a parking garage. The terminal now spans Cicero Avenue, which previously formed the eastern boundary of airport facilities. This project has led to a changing airport over the past several years, and Martin has designed the scenery to reflect these recent improvements to the real airport.

According to Martin, his Midway airport scenery for both FS2002 and FS2004 includes:

- Unique terrain and pavement rendering techniques.
- Seasonal ground changes (spring, summer, fall, winter, and hard-winter).
- Renovated terminals A, B and C.
- Custom runways and taxiways, including all taxiway signs.
- Animated vehicle traffic around Midway (optional, for FS2004 only).
- Transparent terminal windows with animated passengers (optional, for FS2004 only).

- Numerous static objects, like service trucks, cars, airport staff vehicles, etc.
- Docking attendants (marshallers) are provided at all gates.
- Static aircraft, which can be optionally installed.
- Included AFCAD file makes scenery ready for use with. ProjectAI©, MyTraffic©, or UltimateTraffic©.

NEW MIDWAY TERMINAL COMPLEX WITH SUMMER TEXTURES.

NEW MIDWAY TERMINAL COMPLEX WITH FALL TEXTURES.

NEW MIDWAY TERMINAL COMPLEX WITH WINTER TEXTURES.

This scenery is very realistic, and I appreciate the details because I occasionally make trips in and out of Midway because I live in the Chicago area. I've watched the progress of construction during the updating, and the terminal and parking structures are very well done. I particularly like Martin's design of seasonal textures, as shown in three screenshots of the new terminal complex. Note that many of the vehicles in these screenshots are animated, and they continue to move even if you pause the simulator.

For AI traffic enthusiasts, Midway is furnished with a custom AFCAD file that matches the terminal gate assignments for the real airlines that operate at the airport. As indicated above, the scenery is intended to coordinate with the three principal AI traffic add-ons, though I noticed one small inaccuracy related to the location of aircraft parking spots for the three fixed base operators at the field. Signature Flight Support should be identified on the west side of the field and ramp parking spots should be added for GA traffic at this location, particularly including business jets. For those proficient in operating AFCAD2, this can be accomplished in about 15 minutes.

The scenery includes a few static aircraft that you have the option to include during installation. You will not wish to include these aircraft if you've added a lot of AI traffic. I missed seeing this option during my installation of the scenery, but fortunately, because of logical file naming, I was able to delete the static aircraft by changing the name of "x_aerostat_airliners.bgl" to "x_aerostat_airliners.bgx" in the product's scenery folder.

What the Midway scenery might lack in overall numbers of buildings, it provides with the extremely high detail of objects, without sacrificing framerate. Most FS2004 users have come to recognize that the greatest contributors to framerate issues are the density settings of AI traffic and Autogen objects. I believe that's particularly true for Gmax-designed scenery. A screenshot shows part of concourse A in the foreground with the complete terminal and parking garage in the background. The ATA AI traffic is provided by my installation and use of Ultimate Traffic - **http://ultimatetraffic.flight1.net** - which in my installation also incorporates additional aircraft models by Project AI -**www.projectai.com**

VIEW OF PART OF CONCOURSE A IN FOREGROUND AND NEW TERMINAL COMPLEX AND PARKING GARAGE IN BACKGROUND.

THE MIDWAY MARSHALLER APPEARS AS YOU APPROACH EVERY GATE.

INTERVIEW WITH MARTIN BRUNKEN

I conducted a "virtual interview" with Martin and here are his responses to a series of questions:

DH: What program did you use for designing the scenery, and why did you choose this program?

MB: I use Gmax for everything; only 5% of the scenery is still done with old-fashioned FS programs.

DH: What did you do in programming the scenery to help with framerate issues?

MB: Call it "low poly" modeling... which means building something with the least possible amount of geometry. What I try to do compared to many other designers is to save on geometry and put more effort into the texture work.

DH: How did you get information on assigning aircraft to gates for the AFCAD file you include to make assignments most realistic? From an airport or airline website?

MB: There is a real time Arrival and Departure listing on the Midway website somewhere.

DH: How did you choose Midway for one of your airport projects?

MB: Randomly, more or less. It's an interesting airport that has been on my mind for a while.

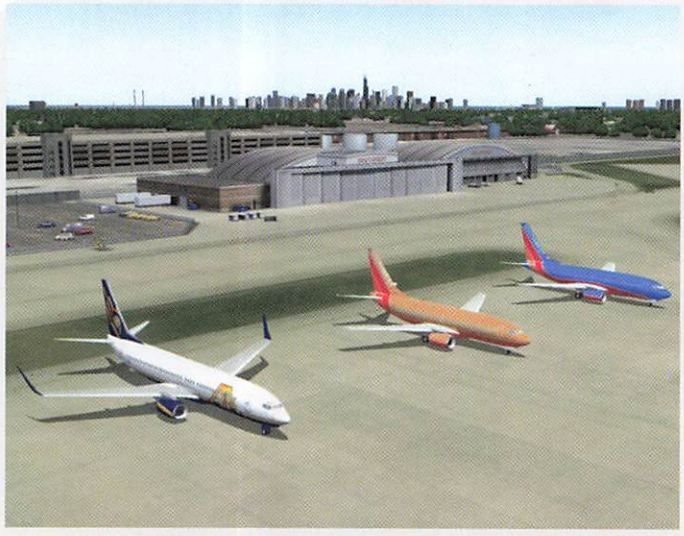
DH: What do you feel in your scenery is unique to your work - not generally being done by other scenery designers?

MB: Nothing really. I only care about the best possible visuals; "gadgets" and "features" are not my strong points.

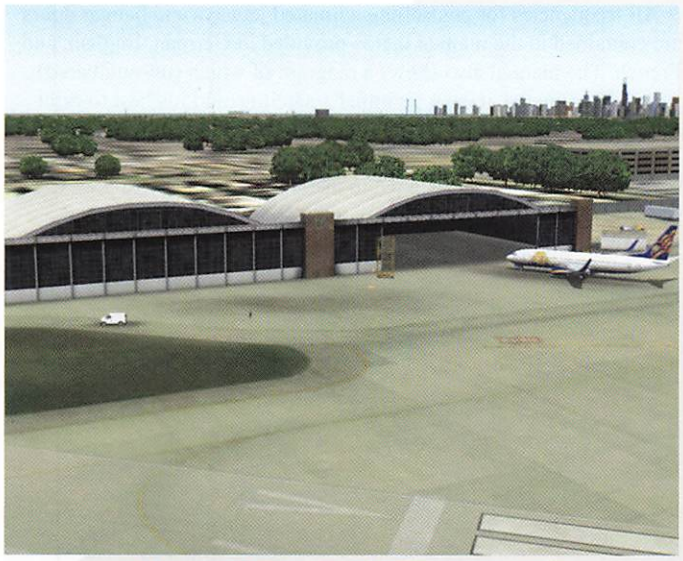
Though the project may not have been as extensive as earlier scenery products that Martin has produced, his rendering of the real facilities at Midway is remarkably accurate. Here is a series of screenshots of additional facilities throughout the airport.

VIEW OF REMODELED CONCOURSE B AT MIDWAY.

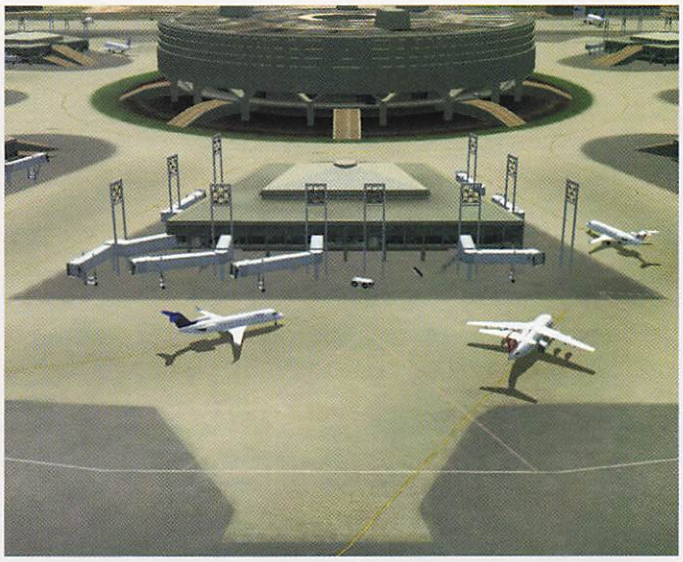
ATLANTIC AVIATION FBO NEAR CONTROL TOWER AT MIDWAY.



AI AIRCRAFT PARKED NEAR ATA AND SOUTHWEST MAINTENANCE FACILITIES.



AI ATA AIRCRAFT AT ATA MAINTENANCE FACILITY.



SCREENSHOT OF UNEXTENDED JETWAYS BEFORE INSTALLING ALTERNATE JETWAYS AND AFCAD FILE.

You can find the product description and purchase the download version of FlyTampa's Midway airport scenery at **http://www.flytampa.com/products.html**. On this linked page, the cost is US$21.50 through BMT Micro or €18 through Simmarket.

Paris CDG, by Sim-wings, distributed by Aerosoft (Germany)

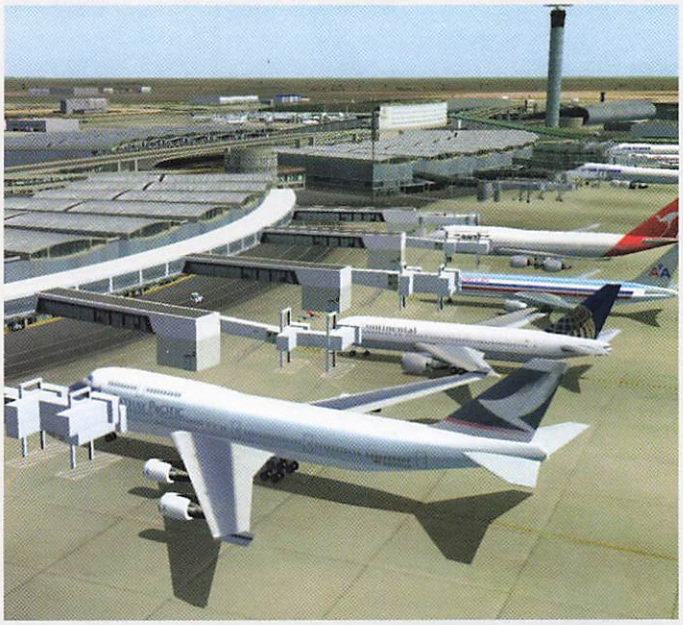
The largest individual airport scenery I've installed recently is Sim-wings' Paris CDG for FS2004 (only). According to developer Thorsten Loth, Paris CDG was designed with Gmax® and other FS2004 SDK utilities to provide an exact replica of the airport. To take this a step further, Thorsten took photos at the apron side of the airport with the approval of officials of *Aeroports de Paris* (ADP). Consequently, nearly every building of this huge airport is reworked for the scenery, including exact rendering of the hotels and office buildings of the nearby Roissypole area.

Here are some additional features of this software:

- Scenery is compatible with AI Traffic and most traffic add-ons.
- Static aircraft are removable.
- Compatible with most landclass add-ons.
- Works great with (payware) FlightParis (see **http://www.flightscenery.com/flightparis**).
- Huge amount of moving objects on the airport roads.

An issue that has been of concern to some users is the AFCAD file furnished with this scenery, as AI aircraft do not activate the moving jetways, and the number of gate parking spots is limited. You can see this in the screenshot showing one of the round satellites with only three AI aircraft. For typical "heavy users" of AI aircraft, user Jean-Philippe Delwiche has developed an alternative AFCAD file. Look for "afcad_lfpg_sim-wings_167339.zip" on popular file download sites. To use the alternative AFCAD file you'll also need to install alternative scenery files that are provided by Sim-wings at **http://www.sim-wings.com/download.htm**
These files replace the animated jetways with static jetways at their extended (aircraft docked) positions.

The alternative AFCAD file places airline codes at 280 gates, using information from ADP documentation, compared to 52 in the furnished AFCAD file. After installing the alternative AFCAD file and jetway textures, I was amazed how many more AI aircraft became visible at the airport, as can be seen in all other screenshots.

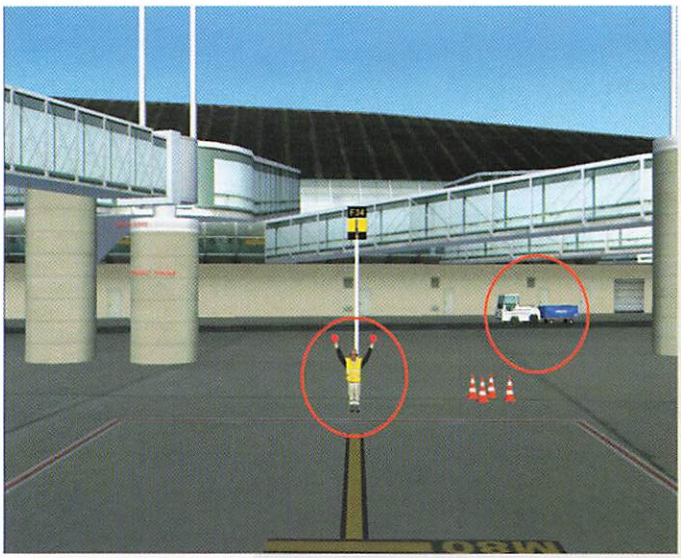


AI TRAFFIC DOCKED AT HIGHLY-DETAILED TERMINAL 2 AND GATES WITH ALTERNATIVE AFCAD FILE AND JETWAYS.

At the T, U, V, W, X, Y, and Z satellites of Terminal 1, as well as several other parking spots at terminals 2 and 3, you'll find animated, moving jetways, and you'll be guided into position by marshallers. Overall, there are 57 animated jetways. You must set the Nav2 frequency to 111.0 for the marshaller to appear, then after setting the parking brakes, activate the moving jetways by entering into Nav2 the specific frequency for each terminal and gate, as provided in the manual. Setting radio frequencies for specific hangars also controls hangar door animation.

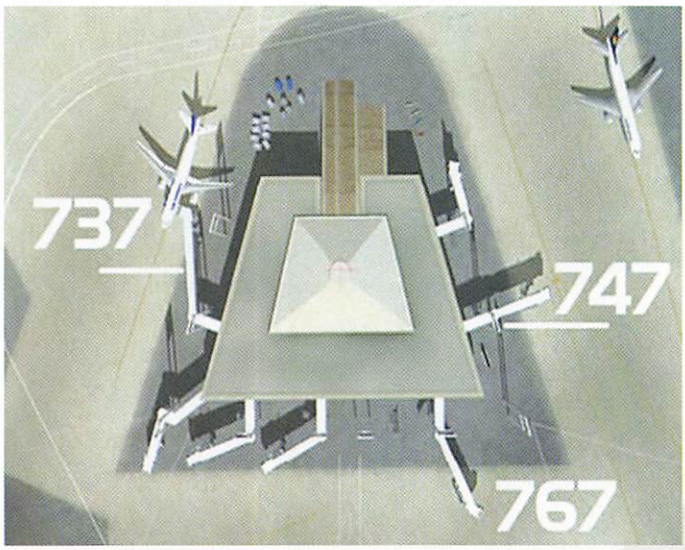
UNIQUE SHAPE AND TEXTURE OF F GATES AT TERMINAL 2.

CARGO STANDS NEAR AIR FRANCE MAINTENANCE HANGARS.



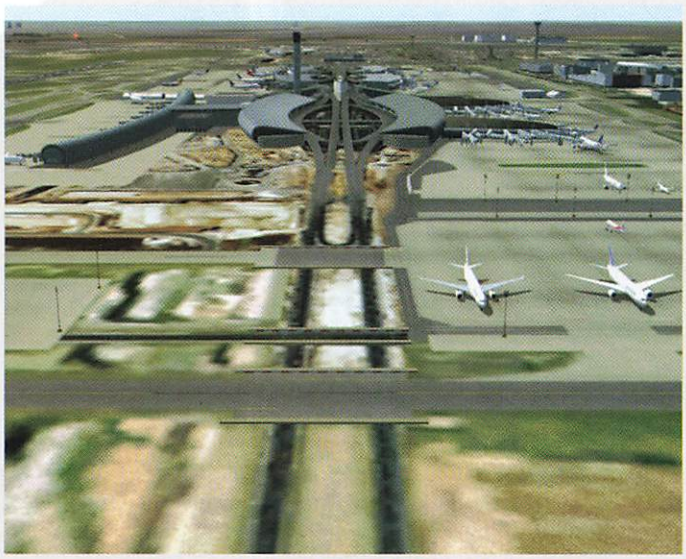
MARSHALLER AND ANIMATED BAGGAGE VEHICLE IN PARIS CDG SCENERY.

All frequencies for controlling animated jetways and hangar doors are contained in the manual that is provided in German, English, and French. The manual also shows a diagram of which (un-numbered) gates are animated at each Terminal 1 satellite, and it's best to print the frequency tables along with the included airport diagram. Note also that the movable gates, along with the marshaller "stop and set brakes" indication, are designed to match boarding door and jetway positions for Boeing 737s, 747s, and 767s. I was surprised that these weren't specified for Airbus types also.



THE MANUAL INDICATES THE ANIMATED GATES FOR EACH TERMINAL 1 SATELLITE.

I found that setting these frequencies is a bit tedious, and I prefer the automated appearance of a marshaller in the Midway scenery, though I like the appearance of the marshaller better in Paris CDG. As with the Midway scenery, there are many animated vehicles to add to the realism. Another interesting feature is that the taxiways crossing the A1 motorway are very realistically rebuilt as bridges. The ground scenery is based on the FS2004 default aerial photo underlay, which Thorsten has enhanced with higher resolution aerial pictures.



VIEW OF CDG TERMINAL 2, WITH TAXIWAY BRIDGES OVER MOTORWAY IN FOREGROUND.

I asked a few questions and received Thorsten's responses to provide another "virtual interview," as follows:

DH: Please tell readers about yourself.

TL: I´m 39 years old, married and I have two sons aged 11 and 13. I was born and live in Germany near Dusseldorf (Airport EDDL). My profession, besides the FS programming, is that I´m a graphic and marketing/communication professional, owning a small agency called *MediaDesign Loth*. I started with computer graphics in 1988 using the ATT Graphic Software Labs tools *Topas 3D Professional*, *Rio,* etc. I´m not a pilot but I would like to get a PPL, if I only had the time, but I´m often flying as an airline passenger.

DH: What programs did you use for designing the scenery, and why did you choose these programs?

TL: Paris CDG was made with *Gmax*, which provides the best performance in FS2004. Textures were made with *Adobe Photoshop*. Some Gmax objects were tweaked with Arno Gerretsen´s *Animation* and *ModelTweaker* programs.

DH: What did you do in programming the scenery to help with framerate issues?

TL: This is a very tricky thing and I can't explain it in detail. Mostly I did a few things you have to keep in mind while programming:

- painting instead of building, such as paint a stair and use the texture instead of modeling all stairs.
- reducing the visibility of details, like the LOD system.
- using the correct texture file formats.

DH: How did you get information on assigning aircraft to gates for the AFCAD file you include to make assignments most realistic?

TL: We took a lot of pictures and I used the charts available from the French airport authorities at **http://www.sia.aviation-civile.gouv.fr** (site has both French and English versions).

DH: You indicate you visited the airport and took photos. Did you have any security concerns?

TL: We took the pictures at CDG with official approval by the ADP authorities. In fact, ADP personnel accompanied us during our apron visits and of course we had to pay them for this service. I've found that in France, like Spain, or Germany, it´s quite easy to take pictures at airports. It´s not forbidden as long as you don't enter a restricted area or take pictures of military facilities.

DH: How did you choose CDG for one of your airport projects?

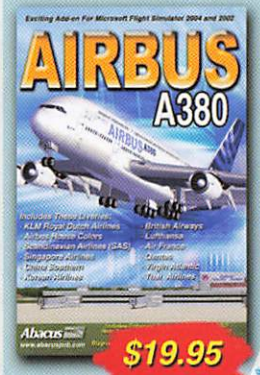
TL: After I had finished the French airport of Marseilles, I thought it could be a good idea to make Paris CDG. CDG is a very interesting site. Also there was no good high quality (payware) scenery of CDG available. And CDG is just a four or five hour car drive away from my office, which helped me visit the airport several times for taking pictures.

DH: Paris CDG is a very large and detailed project. Did you do all the work on this, or were you assisted by others?

TL: I made everything myself, except the marshallers, which came from Manfred Spatz of the Sim-wings team.

I highly recommend this scenery, and you can find further description of Paris CDG at **http://sim-wings.com**, and you can purchase the product at **http://aerosoft-shop.com/product_info.php?products_id=97&**. The current cost is €17.20.

We Fly The World

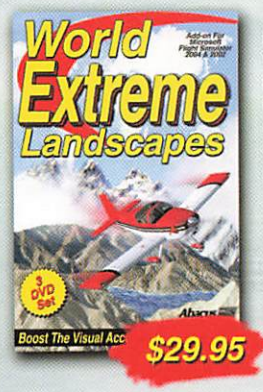


AIRBUS A380

Although it's not scheduled to enter into service until 2006, you can fly the fabulous A380 today. The Airbus A380 features liveries of these airlines: Singapore Airlines, Lufthansa, Qantas, KLM, Air France, Virgin Atlantic, British Airways and others. You'll also get a full 3D virtual cockpit and customized Flight Management Computer (FMC) that works with the Flight Simulator's built-in Flight Planner. You can fly virtually hands-free except for take-off and landing. We've also included enhanced scenery of the Toulouse (France) Airport - home of the Airbus A380 and a series of flights for you to fly. ISBN 1-55755-595-8 $19.95

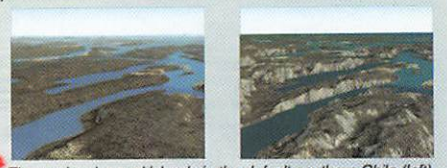
Civil Air Patrol
Fly Search & Rescue Missions

A major task of the Civil Air Patrol (CAP) is conducting search and rescue operations. Now you can use the exclusive Search Pattern software to create flight plans for these search and rescue operations in FS. The Search Patterns may be one of five types based on the terrain, environment, and other characteristics. These are standard FS flight plans that can be used by our special GPS to help with the search and rescue missions. Take the pilot's seat in the Cessna L-19 Bird Dog, Cessna 185 Skywagon, Gippsland GA8 Airvan, DHC-2 Beaver. ISBN: 1-55755-596-6, $29.95



World Extreme Landscapes

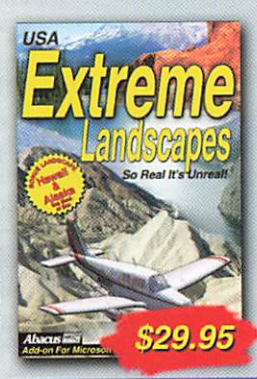
Flying is a great way to see the world's scenery and World Extreme Landscapes transforms that scenery into even more significant visual spectacles. Its three DVDs contain high resolution data to deliver an extreme level of scenic accuracy that you must see to believe. We also include tours for your "flightseeing" pleasure. ISBN: 1-55755-604-0, $29.95



The peninsulas and islands in the default southern Chile (left) are more treacherous in World Extreme Landscapes (right).

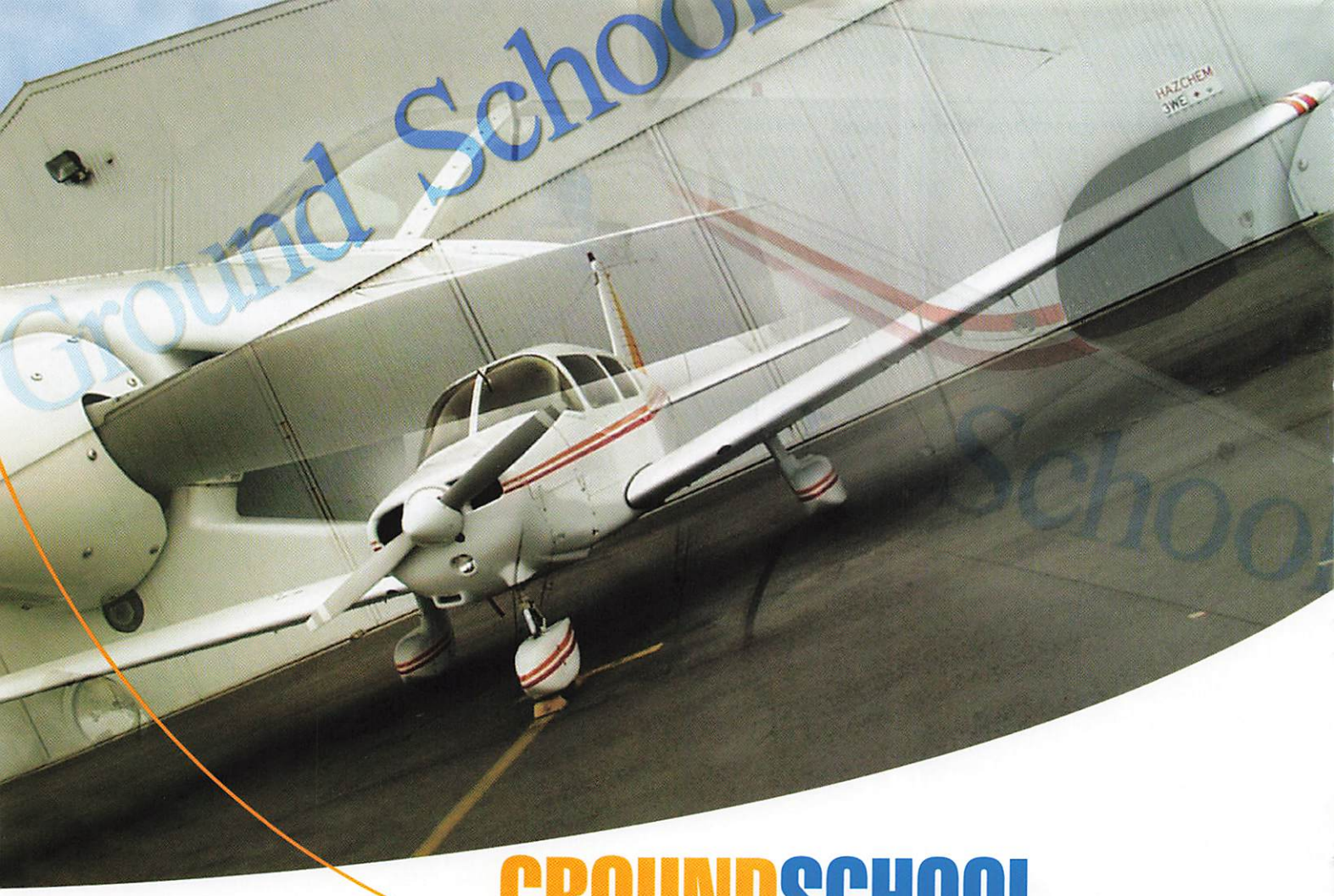
USA Extreme Landscapes

The beauty of Microsoft Flight Simulator is the boundless geographic places you can visit. Drop in USA Extreme Landscapes and we'll transform these magnificent places into even more visual spectacles. This new adventure package delivers a new level of scenic accuracy that you'll have to see to believe. We've replaced the default elevation data with higher resolution 38 and 76 meter info which increases the detail 32-fold. The detail is 'so real – it's unreal! For your "flightseeing" pleasure fly the pre-planned tours in the Piper Dakota from Carenado. You'll be able to fly "low and slow" and have a chance to see the new landscape up-close. ISBN: 1-55755-546-X, $29.95



Abacus
5130 Patterson SE
Grand Rapids, MI 49512

1-800-451-4319
www.abacuspub.com



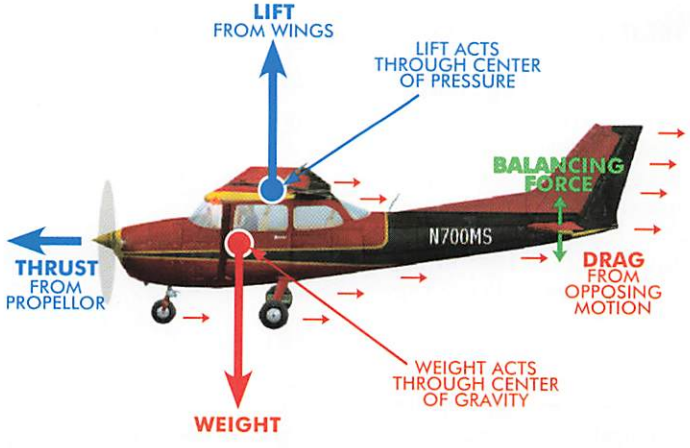
GROUNDSCHOOL...

Skill Level: **All Levels** Instructor...**Pete O'Tube**

THE PROPELLER

A propeller translates engine-power to a thrust-force.

A normal aircraft is flown by the pilot controlling the "four main forces", plus one. The four main forces are thrust force from the propeller (which converts engine-power to a thrust-force), the lift force (an aerodynamic force created by airflow around the wing), the drag force (opposing the aircraft's motion), the weight force (which is the weight of the aircraft and everything in it), plus a balancing force (created by the pilot using the control column to position the elevator, and so creates a down or up aerodynamic force to hold the aircraft's nose in the desired position).

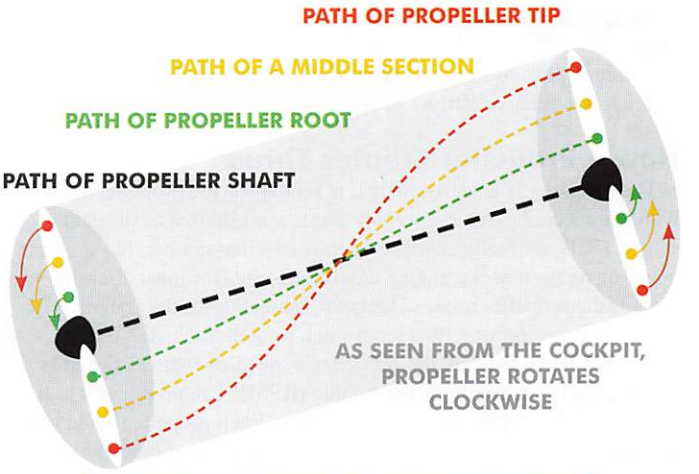


THE FOUR MAIN FORCES, PLUS ONE

A piston engine has a carburettor which mixes air with fuel (normally AVGAS, aviation gasoline), and this fuel/air mixture is delivered into the cylinders where it is combusted (i.e. burned) to create engine power. This energy from the fuel/air combustion in the engine's cylinders drives the pistons up and down in the cylinders. The up/down motion of the pistons in the cylinders rotates the engine's crankshaft, which rotates the propeller (connected to the engine's crankshaft). The rotating propeller accelerates the air rearwards, and the reaction is to create forward thrust.

THE ENGINE'S CRANKSHAFT ROTATES THE PROPELLER

As mentioned in Newtown's Third Law of Motion, every action causes an equal and opposite reaction. Because of the propeller's action to accelerate the air rearwards, the equal and opposite reaction is to force the propeller forwards (and also the aircraft to which the propeller is connected). This is the thrust force which causes the aircraft to move forwards through the air, to accelerate the aircraft forwards during the takeoff-run and in flight, and maintain cruising speed by balancing the drag forces caused by the aircraft's motion through the air.

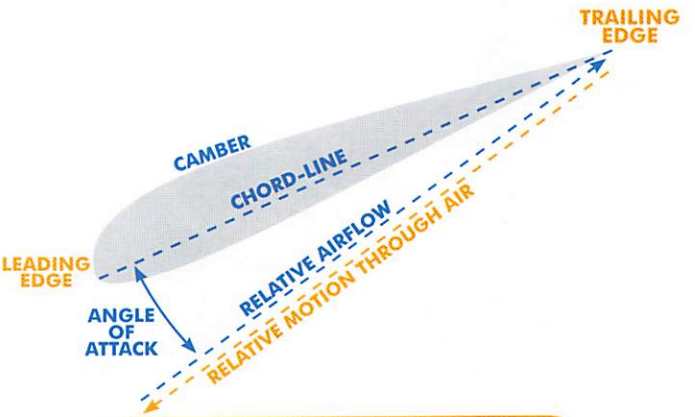

PATH OF PROPELLER TIP
PATH OF A MIDDLE SECTION
PATH OF PROPELLER ROOT
PATH OF PROPELLER SHAFT
AS SEEN FROM THE COCKPIT, PROPELLER ROTATES CLOCKWISE

SPIRAL MOTION OF A PROPELLER THROUGH THE AIR (I.E. A HELIX OR CORKSCREW)

As the propeller rotates and the aircraft moves through the air, each point on the propeller blade will follow a helix path - like a straight line wrapped around a cylinder. The closer the point to the tip, the wider the radius of its helix, and the faster its rotational velocity.

The Propeller is an Aerofoil

An aerofoil is any surface designed to take advantage of the air current through which the aerofoil flows, and so create an aerodynamic force to control the aircraft. It could be the lift force from the airflow around the wing's aerofoil, or the balancing force created by the airflow around the elevator or stabilizer, or the rolling forces created by the airflow around the ailerons near the wingtips, or the yawing forces created by the airflow around the rudder, or the forward thrust force created by reaction to the rotating propeller forcing the airflow rearwards… phew, that was a mouthful! Each aerofoil has an aerodynamically-designed camber shape with a leading edge and a trailing edge, joined with a straight chord line. If you are going to learn to fly, these terms will become well-known!



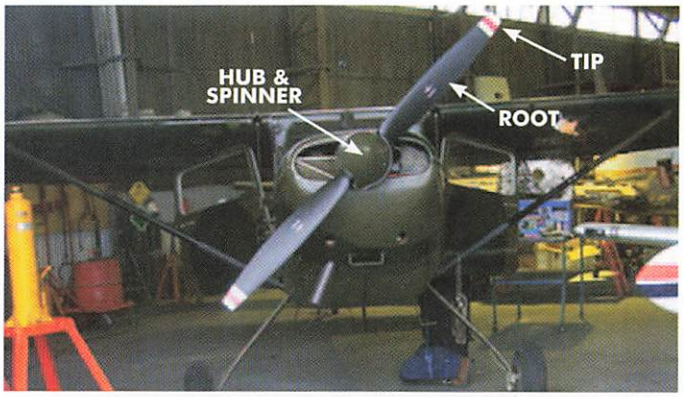
AN AIRCRAFT'S AEROFOILS

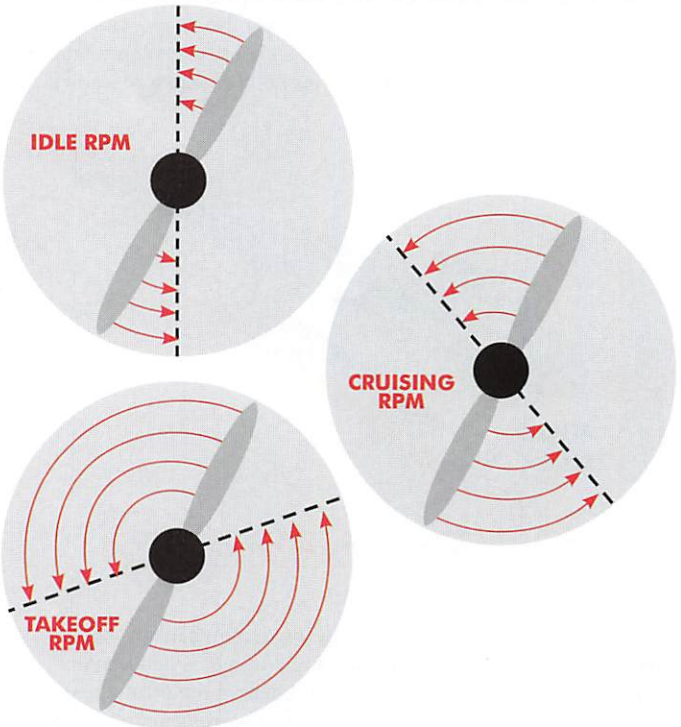
The **aerodynamic force** created by an aerofoil depends on the speed of the relative airflow and the angle-of-attack between the airflow and the aerofoil. If the angle-of-attack is too great, the airflow over the aerofoil becomes disturbed, and so a strong aerodynamic force is no longer created. For example, a wing can create a suitable lift force for cruising when the angle-of-attack is approximately 4 degrees, but if you increase the wing's angle-of-attack to more than

16 degrees, the airflow is disturbed and the wing stalls – the lift force drops off, i.e. the aerodynamic force decreases significantly. The same principle applies to the propeller's angle-of-attack. The angle-of-attack to the relative airflow should not be too great.

How a Propeller Creates Thrust

The propeller is an aerofoil, and is rotated by the propeller shaft being connected to the engine's rotating crankshaft. The propeller shaft's HUB, normally covered by the propeller-spinner, has the same plane-of-rotation as the engine crankshaft, and (for most aircraft, but not all) the propeller rotates clockwise as seen from the cockpit. For basic training aircraft with a fixed-pitch propeller, e.g. the Cessna 172 or the Piper Warrior, the propeller's speed-of-rotation depends on the engine's revolutions per minute (RPM). The propeller's hub is the centerline of the propeller's rotation. Each propeller blade has a propeller root near the hub, and a propeller tip most distant from the hub. A section of a propeller blade is defined by its percentage-distance from the hub, i.e. the propeller section which is 3/4th distance between the root and the tip is called the 75% propeller-section. This is where a lot of the lift-force is created.





ROTATIONAL-VELOCITY OF A PROPELLER-SECTION OF A STATIONARY AIRCRAFT DEPENDS ON PROPELLER RPM AND RADIUS FROM HUB

If the aircraft, like a Cessna 172 or Piper Warrior, is stationary on the ground and has the engine operating, the propeller's motion is totally rotational, with the propeller tip having a faster rotational velocity through the air than the propeller-sections nearer to the propeller's hub (i.e. the propeller's root). The angle between the propeller-section's chord line and the propeller's plane-of-rotation is known as the propeller-section's *blade-angle.*

The speed through the air of a propeller blade-section when the aircraft is stationary on the ground depends upon the RPM and the radius of the blade-section from the propeller's hub.

Resultant Velocity of a Propeller-Section

When the aircraft is moving through the air at a certain airspeed, the propeller's total velocity through the air is the addition of its rotational velocity plus its forward velocity (i.e. the propeller's **and** aircraft's forward velocity). The total velocity of a propeller blade-section depends, to some degree, on its distance from the propeller hub, and is also known as:

propeller-section's resultant velocity =

rotational velocity + forward velocity

The further the propeller-section from the hub, the faster its resultant velocity (i.e. total velocity), and will be greater than the aircraft's forward velocity. The propeller tip is the fastest part of an aircraft and, for very fast aircraft, the propeller tip would be the first part of the aircraft to meet the speed of sound, and experience compressibility problems.

The angle between the propeller-section and its relative airflow is known as the propeller's angle-of-attack. The angle between the propeller's plane of rotation and the propeller's angle-of-attack to its relative airflow is known as the propeller's *helix-angle.*

PROPELLER TWIST IS ESSENTIAL

Propeller Twist

As the propeller-section moves through the air, it meets its relative airflow, and the relative motion between the propeller-section and its relative airflow results in the action of rearwards movement of air, and the reaction results in the thrust forcing the propeller (and aircraft) forwards. The efficiency of each section of the propeller's blade depends on its angle-of-attack to its relative airflow. If the angle-of-attack is too small or too large, the aerodynamic force created by that propeller-section will be poor. If all of the propeller blade has the same blade-angle, much of the propeller blade would provide only a weak aerodynamic force, or none at all! Designers use propeller twist so that the blade-angle is greater the closer that propeller-section is to the propeller tip, and this causes the angle-of-attack to be suitable and so can provide a good aerodynamic force.

Fixed-Pitch Propellers

Training aircraft, like the Cessna 172 or the Piper Warrior, are fitted with a propeller whose blade-angle cannot be changed. It means that if you change the propeller RPM and/or the aircraft's airspeed, the propeller's angle-of-attack to its relative airflow will change, and so the creation of aerodynamic force will not be as good. Therefore, an aircraft fitted with a fixed-pitch propeller can only operate efficiently within a limited range of RPM/airspeed.

Note: If the propeller's blade-angle could be increased, the aircraft could cruise efficiently at a higher airspeed.

Controllable-Pitch Propellers

The Cessna 182 is fitted with a controllable-pitch propeller which the pilot can vary so the C182 can cruise efficiently at various airspeeds. The propeller can use an efficient angle-of-attack even if the pilot changes airspeed. At low speed, the propeller will use low pitch, with the propeller-sections operating at a suitable angle-of-attack. At high speed, the propeller will use a higher pitch, with the propeller still having an efficient angle-of-attack. As airspeed increases, the propeller's blade-angle increases to maintain a suitable angle-of-attack.

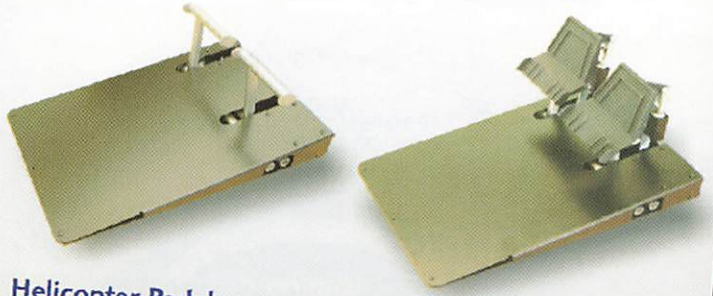
The pilot can select the desired propeller RPM using the propeller pitch control. A device, known as the 'propeller governer' is connected to the propeller and will automatically adjust the blade-angle (i.e. propeller pitch) so the pilot's selected RPM is maintained. Hence, the controllable-pitch propeller is also known as a constant-speed propeller. The pilot has two controls to control the constant-speed propeller:

1. **Propeller-pitch control**: to select propeller RPM; and
2. **Throttle**: to control the engine's manifold pressure (MP).

Compared with these two controls, the pilot of a fixed-pitch propeller has only the throttle to control engine power and propeller RPM.

SIMKITS
SIMULATOR PARTS

The Best Quality Rudder Pedals for Flight Simulation



Helicopter Pedals
The size and shape of these Helicopter Rudder Pedals are so close to the original that they feel as if they came from the real aircraft. That's because they are an exact replica of the Robinson R22/R44 pedals!

Fixed Wing Pedals
Designed as a replica of the original Cessna 172 Skyhawk Rudder Pedals, these pedals feature Proportional Braking and a full parallel travel. In fact, these rudder pedals give the feeling as flying in the real aircraft!

Both rudder pedal systems are produced from high quality, 3mm. thick, powder-coated aluminium and stainless steel tubes. The Fixed Wing rudder system include die-cast aluminium pedals. The pedal systems connect to your PC via a USB connection, and are recognized under Windows without the need for additional software installation. Both work with all popular flight simulator programs.

www.simkits.com

Propeller Effects During Takeoff

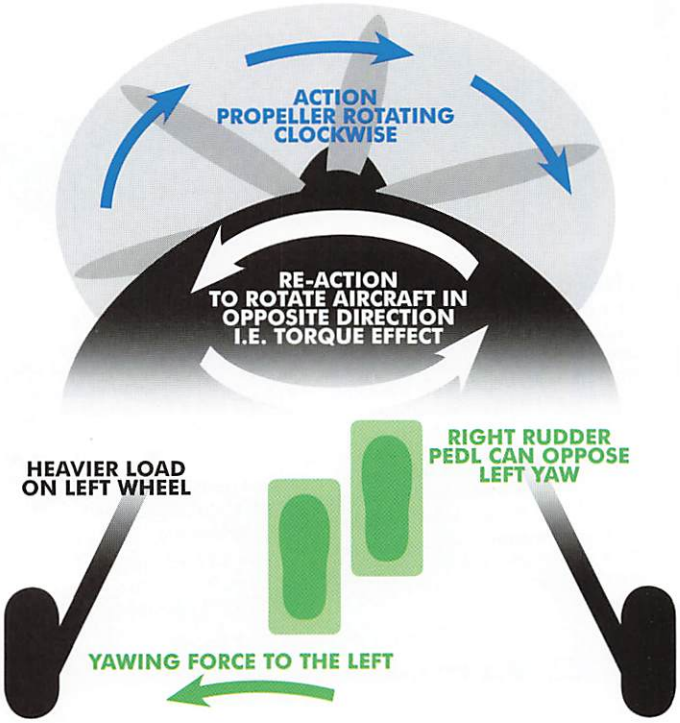
When engine power is applied for the takeoff, the propeller can cause a number of effects.

A propeller rotating clockwise may cause the Slipstream Effect trying to yaw the aircraft left. This is caused by the airflow from the propeller having a helical path (i.e. corkscrew) around the aircraft, and hitting the tailplane fin on the left - which yaws the fin to the right and, therefore, yaws the aircraft's nose to the left. The pilot can counteract this with some foot pressure on the right rudder pedal.

SLIPSTREAM HITS LEFT SIDE OF THE FIN AND FORCES THE TAIL TO THE RIGHT (AND THE NOSE TO THE LEFT)
PROPELLER ROTATION CLOCKWISE
N700MS

SLIPSTREAM EFFECT FROM A PROPELLER

A propeller rotating clockwise may cause a reaction known as the Propeller-Torque-Effect, trying to rotate the aircraft in the opposite direction, i.e. anti-clockwise. This puts more pressure on the left wheel, and this may cause the aircraft to yaw to the left. The pilot can counteract this with some foot pressure on the right rudder pedal (i.e. the same correction as for the slipstream effect).



PROPELLER TORQUE EFFECT

Assymetric Propeller Blade-Effect (P-Factor)

Early in a Taildragger Takeoff – with tail still down

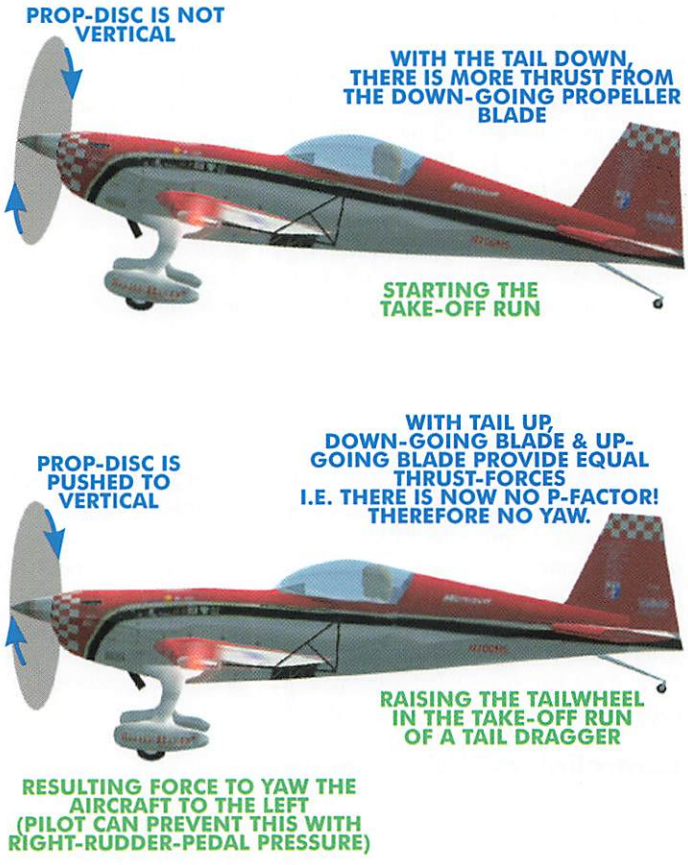
Early in the takeoff of a taildragger, the propeller disc is not vertical. The down-going propeller blade will have a greater angle-of-attack (than the up-going propeller blade), and will move faster through the air. This provides more thrust-force on the down-going half of the propeller disc, and this will try to yaw the aircraft to the left. The pilot can counteract this with some foot pressure on the right rudder pedal (i.e. the same correction as for the slipstream effect, and the propeller torque effect).

Microsoft Flight Simulator does offer realism settings for P-Factor, so now you know what it is all about!

Propeller's Gyroscopic Effect

In a Taildragger Takeoff – when tail is raised

Raising the tail early in the takeoff-run for a tail-wheel aircraft pushes the top of the propeller disc forward. Gyroscope-precession causes the similar force on the propeller disc, but at 90 degrees further in the direction of the propeller's rotation. If the propeller disc is rotating clockwise, the force applied on its top when the tail is raised will cause gyroscopic-precession to yaw the aircraft to the left. The pilot can counteract this with some foot pressure on the right rudder pedal (i.e. the same correction as for the slipstream effect, the P-factor, and the propeller torque effect).


PROP-DISC IS NOT VERTICAL
WITH THE TAIL DOWN, THERE IS MORE THRUST FROM THE DOWN-GOING PROPELLER BLADE
STARTING THE TAKE-OFF RUN
PROP-DISC IS PUSHED TO VERTICAL
WITH TAIL UP, DOWN-GOING BLADE & UP-GOING BLADE PROVIDE EQUAL THRUST-FORCES
I.E. THERE IS NOW NO P-FACTOR!
THEREFORE NO YAW.
RAISING THE TAILWHEEL IN THE TAKE-OFF RUN OF A TAIL DRAGGER
RESULTING FORCE TO YAW THE AIRCRAFT TO THE LEFT (PILOT CAN PREVENT THIS WITH RIGHT-RUDDER-PEDAL PRESSURE)

GYROSCOPIC EFFECT IN A TAILDRAGGER TAKEOFF

Conclusion

Notice that, if the propeller is rotating counter-clockwise, the propeller effects will try to yaw the aircraft to the right (i.e. not a yaw to the left as caused by a clockwise rotating propeller), and you can counteract with some foot pressure on the left rudder pedal (rather than right rudder pedal pressure). Propellers and their actions are certainly an interesting study. Knowing the theory behind them will help you maintain best performace during your flights, as well as improve the flight safety factor.

Keep on Smiling!
Pete O'Tube ✈

CLOCKWISE ROTATION AS SEEN FROM THE COCKPIT

COUNTER-CLOCKWISE ROTATION AS SEEN FROM THE COCKPIT

INBOX

"John Jamison" WINS 12 MONTH COMPUTER PILOT SUBSCRIPTION/EXTENSION!

Subject: A WORD OF THANKS...

Greetings,
I wanted to write a brief note and express a "Thank You" that focuses on another side of the Flight Sim experience.
Many years ago, my uncle Don sparked an interest in my mind about flying. He was one of those 'guys in the tower' in places like Pierre, SD., Kirksville, MO., Quincy and finally Decatur, IL. Although never a pilot himself, aircraft and airports were his life (along with his amateur radio). He first hooked me on a flight simulator on my old Commodore 64, and we spent many hours 'flying it right'. He taught me the old way; a watch with a second-hand, with a ruler and a map on your knee.
Although never living near each other, Don and I spent many hours talking about articles in Computer Pilot, flying the adventures and debating the pros and cons of this plane and that plane. A couple of years ago we decided to accept a challenge and we began to plan our flight around the world in his favorite custom-painted Baron. After many months of planning so we could 'fly it right', we finally took off from Catalina a few months ago, heading East and sharing logs and stories of the adventures along the way.
Unfortunately after unwanted delays, in June we had to tether the old Baron to the tarmac in Milwaukee when Don lost his fight with cancer. I haven't had the heart to pick the journey back up, but will one day soon. I just wanted to take this opportunity to thank Don for the magic that is flight sim, and thank Computer Pilot for the many, many hours of pleasure that you helped create. To those other simmers out there, make it a point to enjoy the flyers as much as the flying, and if you have the time, how about buzzing the tower there in Decatur, Illinois and give a wave to Don. 73's uncle!
Thank you,
John Jamison
Battlement Mesa, CO

[John, Thanks for your email. Flight simulators, despite the often isolated environments in which they are enjoyed, have a strange way of bringing people together. More so now online with the advent of multiplayer options, and online air traffic control networks. However, individuals and groups continue to meet offline all around the world to enjoy flying together as well. Ruffle up some courage and get those Baron engines ticking over once again. I am sure Don is flying high and looking down on you waiting to see the journey completed. He will no doubt be sitting in the copilot's seat for the remainder of the adventure. – Ed]

Subject: REAL WORLD ADVENTURE

I am a keen FS2004 simmer and avid reader of Computer Pilot, still amazed at the wonders of modern technology. I fly FS2004 during the week and a Motorfalke FS25b motor glider based at Rochester (EGTO) airport on the weekends. If any fellow simmers would like a flight in my spare seat they would be very welcome. I usually fly over to Calais (LFAC) Saturday mornings for coffee, so if any one needs some Channel photos, bring the camera. My email contact is jacksongbmva@aol.com

All the best,
Malcolm Jackson

[Well simmers, there's an opportunity that might be too good to refuse, at least if you are in the UK anyway. Flying the channel, sipping coffee in France, enjoying the sights, and all on a weekend to boot... Thanks for the email Malcolm, and if you get any takers, be sure to send us lots of photos! - Ed]

Subject: EASTER EGG

Hi Ed,

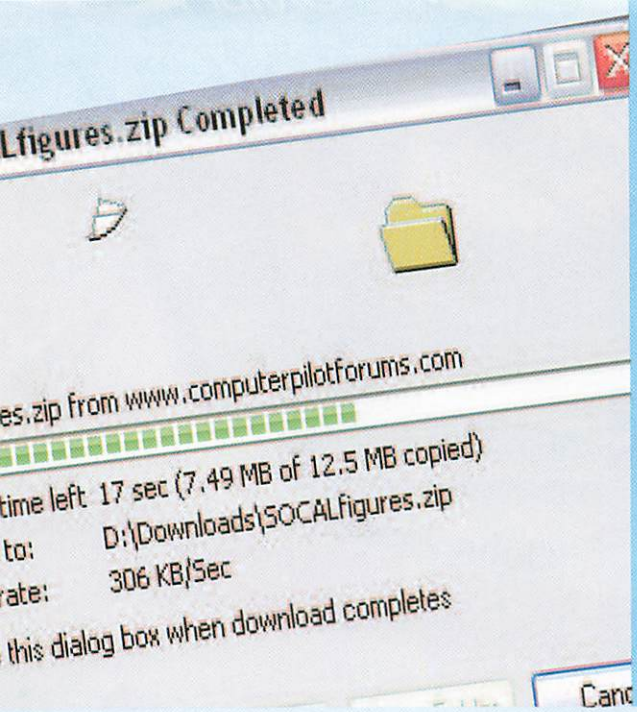
As I was doing an approach in the fantastic Captain Sim 727-200 from the north into KSEA, I thought that I noticed what looked like a giant duck on the ground. I jumped into the R22 and took off north to see if I could find it again but to no avail. Next day, I thought that I would try again in the C182 but still no luck. Still later, I thought that I would try the 172 (getting slower and lower all the time when I saw it again, but to my surprise it was a giant "chook" (Australian for chicken). I just thought that you might all be interested in having a look (if you haven't done so already). The co-ordinates are N 47*28.50 W122*18.23.
Keep up all your great work,

Nathan Ford
Australia

[Nathan, I thought for a second there you had found my missing goose that lays golden eggs, but alas, it was not to be. However readers, the chicken is really there! Check it out. – Ed]

Write To *Computer Pilot INBOX*

If you have something you want to share with fellow flight simulator enthusiasts, then Computer Pilot INBOX is the place to be heard. Each issue, we'll choose the best letter as the letter of the month and reward that reader with a prize!
The easiest and quickest way to submit your letters is by e-mail to: *inbox@computerpilot.com*



FREEWAREFRENZY

Top Downloads at a Price that is Hard To Beat!

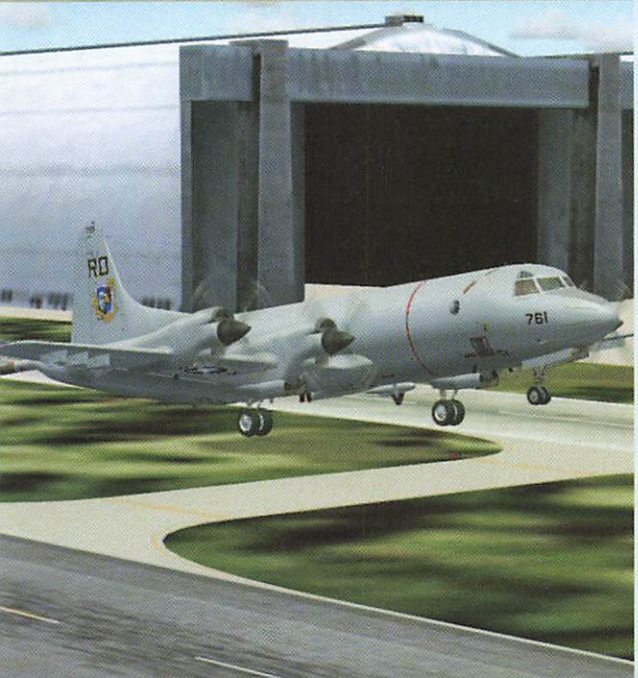
FREEWARE EXPLORER THIS ISSUE: LARRY A. COLEMAN

By popular demand, Freeware Frenzy has returned to Computer Pilot magazine! Every 2nd issue, we will track down the best freeware downloads available for a wide variety of civilian and combat simulators. Every add-on mentioned in this column can be yours for FREE (Internet connection required) thanks to the great community of freeware developers devoting their time to creating awesome simulation masterpieces. We salute you!

Jet City Aircraft B717-200 — FS2002/FS2004 Aircraft

Filename: jca_717-200.zip
Authors: Jet City Aircraft
Available From: www.jetcityaircraft.com

Would you like to acquire a payware airplane for free - legally? Well you can thanks to the generosity of the development team at Jet City Aircraft. The group has made their Boeing B717-200 aircraft available free of charge. The download includes 5 liveries including the superb TWA paint scheme shown above. If you have ever considered purchasing a Jet City Aircraft but wanted a chance to check out one of their products first the B717-200 is a perfect opportunity to do so. What you get for the price of a download is an aircraft model with first-class workmanship. Watch some of the model's animated features, such as the leading- and trailing-edge flap movement or the deployment of the thrust reverser clam shells, and you will see that this is no stripped down rendition of the payware version. Jet City aircraft do not include a panel or sounds, but the developers have recommendations for both on their site. The recommended sound file is SGA's md9br715.zip. The team recommends Ken Mitchell's B-717 panel, which is covered elsewhere in this column. Both files are available from www.flightsim.com. Here's an opportunity to add a payware quality B-717 to your fleet and evaluate it for free.



Lockheed/Kawasaki P-3C Orion — FS2004 Aircraft/Panel

Filenames: p-3c_.zip (Base package), p3upkbt21.zip (Update to version 2.1)
Authors: Team FS KBT
Available From: http://flightinfo.ens.ne.jp/FS_KBT

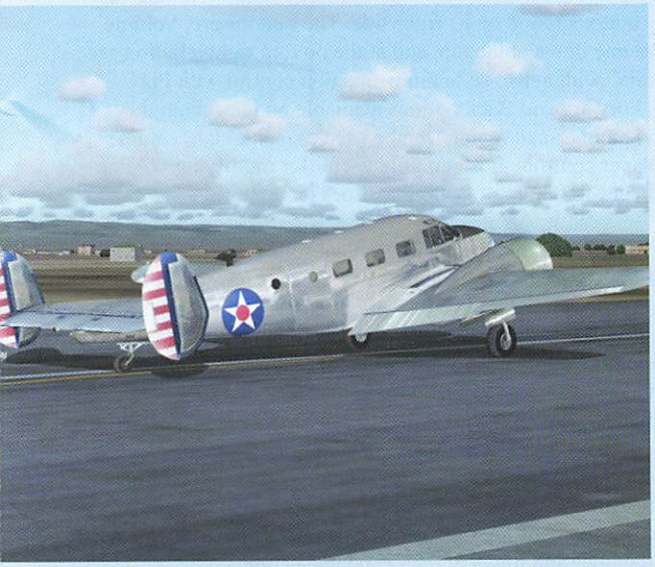
The P-3C Orion is a world-renowned submarine hunter in use with the navies of several countries around the globe. The aircraft created by Daisuke Yamamoto and Hiroaki Kubota of Team FS KBT is well worth the time it will take to download the 70Mb file. The aircraft model and animations are first-rate, with opening doors, deployable stairs, and opening bomb bay doors. The modeling of the sonar buoy launcher on the underside of the fuselage is eye-catching as well. The authors claim the model is multi-resolution such that it will automatically switch to a "lighter" model when in multi-player mode. Versions of the aircraft with and without the virtual cockpit may be loaded depending on your preference. The 2-D panel by Toshikazu Harada is a mixture of default and custom gauges that adequately present the information needed to fly the airplane. For me the sound set included with this package is one of the best features. Adrian Brausch's edited version of Mike Hambly's original sounds really capture the sound of the big Allison turboprops. If you like the feel of flying a heavy but powerful turboprop powered airplane, the P-3C Orion is worth a look.

Airbus A330 Panel Version 2.2 **FS2002/FS2004 Panel**
Filenames: A330_v22.zip, A330v22_patch.zip, nd2k_13.zip
Author: Eric Marciano **Available From:** http://emarciano.free.fr

Eric Marciano has created several Airbus panels over the years. Shown above is the current and last release of the Airbus A320/A330 panel. This panel was originally designed for FS2002, but Eric has developed a patch for his a330.gau file to make it compatible with FS2004. Unfortunately, he does not have the time to support these freeware panels anymore, but many frequently asked questions are answered on his website, and documentation for the panel is available in both HTML and PDF formats. I was not able to duplicate all of the functions as described in the documentation in the short time I worked with it after installation. It is a panel that will take a combination of tweaking and some studying of the manual to use it properly. Having said that, once you look at Eric's documentation and begin to understand all of the features programmed into this panel it certainly encourages you to explore further. The PFD features all autopilot mode annunciations. The ND will display the course and waypoints contained in a FS2002/FS2004 flight plan. Eric has modeled the fixed stops associated with the Airbus autothrottle system. The autopilot is programmed to work in both SELECTED and MANAGED modes - SELECTED mode behaves like the default flight simulator autopilot, while MANAGED mode controls speed, heading, and/or navigation according to the flight plan settings. There is a multitude of aircraft systems programmed for display on the third glass panel. This is just a sample of the features that await you in this panel - check it out if you'd like to fly your A330 with a sophisticated panel!

Boeing 717 Panel **FS2002/FS2004 Panel**
Filename: 717KM_PANEL.zip
Author: Ken Mitchell **Available From:** http://mitchspanelshop.fsgateway.com/

Ken Mitchell has created a very fine panel for the Boeing 717 that is the perfect companion to the Jet City Aircraft B-717 reviewed elsewhere in this column. Ken has made the most of the 4 glass displays available in this panel. The thing that will strike you right away with this panel is its legibility - most of the data appearing on the panel is very easy for the pilot to read. I particularly liked the blocked font style used for annunciations on the panel for the autopilot, autothrottle, and parking brake. A similar font is used to annunciate autopilot modes on the Primary Flight Display. There is an overlay mode on the Navigation Display that I have not seen on any other freeware panel. When the ND is in ARC mode, the overlay at the lower center portion of the glass screen can be set to off, set to display navaid information, or set to display VNAV information - essentially a profile of your altitude. With the ND in ROSE mode, the same button toggles the map view. The center EICAS display presents digital readouts for ground speed, airspeed, radar altitude, time, and altimeter setting. Flap position, elevator trim position, and fuel quantity are also displayed. The rightmost glass panel is a second EICAS panel with the normal engine gauges. There is a panel.cfg file included for FS2002, as well. Ken has done an excellent job with this panel, and I hope you will check it out for use in your B-717, or for that matter, any twin jet in your fleet!



Beechcraft D-18S **FS2004 Aircraft/Panel**
Filename: d18svc4.zip
Authors: Milton Shupe, Scott Thomas, and Andre Folkers
Available From: www.avsim.com

A beautiful rendition of Beechcraft's D18S twin propeller airplane is brought to you by the D18S Project team composed of Milton Shupe, Scott Thomas, and Andre Folkers. These guys just keep turning out fantastic freeware airplanes. You will see when you visit their website at www.flighsimonline.com that all of their aircraft have received at least one award for excellence. The D18S is a GMAX aircraft suitable for FS2002 and FS2004. The aircraft is available with and without a virtual cockpit - the filename above is for the non-VC version I evaluated. All of the GMAX features, such as animated parts, rolling wheels, night lighting, dynamic shine, and specular reflection are available. Milton Shupe is the aircraft designer and flight dynamics creator. Scott Thomas is the designer of the vintage panels for the aircraft and the aircraft checklists. The textures on the D18S are by Andre Folkers. As you can see in the screenshot above, Andre certainly knows how to give the airplane a stunning brushed aluminum look. A custom sound set is in the works. Until it is available, the team recommends the Gee-Bee racer sounds of Mike Hambly (ba_gbr.zip from www.avsim.com) as the Gee-Bee has the same P&W 985 engine the D18S is equipped with. Documentation for the aircraft and panel is provided as part of the installation. The team also maintains a FAQ at their website to help with frequent questions and to keep pilots up to date with any changes to the package. As the authors point out, the D18S is "Still Flyin and Still Pleasin." If you take a look at this fine freeware package I think you will agree.

Welcome to the...

HARDWARE CORNER!

Here we will feature the **latest available** and **upcoming hardware devices** of all varieties of interest for flight simulation, aviation and general computing applications!

Logitech diNovo Cordless Desktop (MSRP US$149.95)

If you haven't gone cordless with your mouse and keyboard yet, this latest offering from Logitech just might convince you that it's time. The diNovo is unlike any other keyboard and mouse combo I've come across yet. Installation is pretty straight forward. There's a little bitty docking bay for the thumb-drive-size USB receiver that rests in it. Drop in the CD and run through the simple installation routine and you're ready to roll. Batteries are also included, which is a plus - they provided quality Duracell batteries at that. The keyboard is actually split, but not split like other keyboards, this one is really split, literally. The number-pad section is completely separate from the actual keyboard section. The entire combo is encased in an impressive black and aluminum-like metallic finish. White keyboards are so boring if you ask me. The virtual pilot in me sure does appreciate the metallic and black finish of most anything PC accessory-related, since it would more resemble a cockpit environment than any white keyboard and mouse ever could.

The keyboard section and number-pad/remote section is very slim. One of the selling points is that it's portable, as much as it is ideal for a permanent setup too. Set up of the combo can be achieved by plucking the tiny USB receiver out of the docking-bay and plugging into a laptop, or even another PC with a USB slot. The keyboard section isn't light, but it isn't very heavy either. It feels very solid despite its slim design. A nice little cloth carry case is provided for the mouse and receiver should you need to go mobile with it.

On each upper side of the keyboard section are hotkeys. The number-pad/remote section mimics the keyboard section with the very same hotkey buttons found on its right side. The buttons are; Volume up, Mute, Volume down at the top, and at the bottom right a button labeled "Media" with a disc-style multi-function control with Play/Pause, Stop, Forward and Back options available on it. So both the keyboard and number-pad/remote can be used to manipulate volume and media player controls. It is certainly useful for modifying volume in flight without fumbling or reaching for speaker controls.

We don't spend good money on an excellent sound system for flight simulations alone however, and I certainly take advantage of the other multimedia capabilities of my flight-sim rig all the time, because music and flight simulations just go hand in hand for me. The number-pad/remote section has a few different functions. In remote mode it displays the current temperature in the room and a clock revealing time and date on the LED display. In Smart Calculator mode it becomes a very useful calculator, and in Numeric Pad mode it offers all of the same capabilities found on the average "Numpad" section of a keyboard. The number-pad/remote section also butts up against the keyboard, perfectly fitting together like peas in a pod, as it has the same shape, contour and finish of the keyboard section.

I've found a very flight simulation-related use for it too, because since most flight simulations utilize some form of keyboard mapping almost all the time, the number-pad/remote makes an ideal MFD if you will, allowing you to extract assignments from the regular keyboard's functionality without all of the bulk of a full-size keyboard. It can easily sit in your lap to control your system volume, provide the means to mute the sound if the phone rings, and still provide the means to key-map vital flight sim functions in the palm of your hand.

The mouse is a little smaller than most I think, but it fits perfectly in my bigger than average paws, so no complaints there. It too offers an ergonomic design with cordless optical technology, so it's very responsive and fast when needed. You may need to fiddle with the receiver placement a little at first, depending on the room setup and how far you want to go with it. The mouse even offers an on/off switch so you can save the battery life when you're not going to be using it.

In use it is a very good keyboard, and although it's physically split, the keyboard layout exhibits the norm with all of the keys in the regular 'QWERTY' configuration. The F-keys are definitely slimmer than most. The little block where you'd normally find a six-key block with Delete, PgUp, PgDn, Home, Insert and End offers a larger Delete key taking up the space of two keys vertically, and the Insert key, Prt Scr and Pause Break are above it, so gone from the keyboard is the Scroll Lock key.

On the upper left-hand side of the keyboard section you'll find hotkeys for Sleep Mode, Homepage, Email and Zoom, and all of the F-keys are additionally labeled on the top with one function. So F1 is also New, F2/Reply, F7/Print, F-11/My Pic, F-12/My Music, and so on. Utilizing the F-Lock Key swaps the functionality of the keys, a pretty smart little idea, one we as flight sim enthusiasts are no stranger to with the "Shift-Key" on joysticks that we've grown accustomed to for swapping button layout functions.

Pros

- A brilliant idea, one that combines visual flare with functionality essential in today's multimedia-driven PC world.
- The remote control-likeness of the number-pad/remote section gives you a lot of functionality in one easy-to-use piece of hardware, and makes a great little MFD-like unit that most any flight simulation enthusiast can find useful.
- Optical 800DPI functionality and speed in a cordless package.
- Ultra-portable and fairly light-weight, but solid.
- Hotkey options not found on budget keyboards.

Cons

- At US$149.95 it's one of the most expensive cordless solutions out there.
- If you're accustomed to a split keyboard, this may not cut it due to the somewhat standard letter key layout.
- Support is only in place for Win2000/XP with this product, all Windows 98 and Me users are out of luck.

More information can be found online at **www.logitech.com**

Gainward Ultra/3500PCX XP Powerpack CoolFX Golden Sample (MSRP US$800.00)

This is a GeForce 7-series based product, utilizing the GeForce 7800GTX as its powerplant, along with 256MB of 1.6ns DDR3 memory in a PCI-Express interface. While most conform to the Nvidia specs, this one strays a little from specs, as do all of Gainwards's Golden Sample products. Combine that with the fact that this very one, adorned with the CoolFX label, just so happens to be water-cooled to boot – a feature which is provided via a partnership with Innovatek.

Other specs include dual 400MHz RAMDACs, S-Video In, S-Video Out, Composite Video In, Composite Video Out, VIVO cable with all of those connections, and HDTV ready. The software bundle offers WinDVD, WinProducer, WinRip and a drivers and utilities disk. No games are included however.

The fan/heatsink cooled (non-CoolFX) Golden Sample version runs at 470MHz, the standard non-Golden Sample version runs at 440MHz. This CoolFX Golden Sample runs by default at a whopping 490MHz and the memory at 1,300MHz. By comparison, the average 7800GTX runs at 430MHz, and the memory 1,000MHz. so it's clear that they are very confident in pushing their products beyond specs, squeezing even more frames per second, and enabling the use of a little more visual candy when needed. In comparison the 7800GTX has 302 millions transistors compared to the 222 million that the 6800 Ultra boasts. The 7800GTX is manufactured on a 0.11 micron fabrication process and has 8 vertex shaders, the 6800Ultra has 6, and more and more titles are taking advantage of the programmable shaders at present.

Due to being a water-cooled solution, it's definitely a little more complicated to get up and running than the average and relatively simple video card swap that most of us are used to. Thankfully, aside from what's provided, all that's needed on your part is some distilled water to mix the coolant for the cooling system reservoir. This version comes with an entire kit, with the pump, a length of hosing, a monster radiator, the cooling block, instructions; everything that's needed is there and all packed into a monster-size package. The only thing that they don't provide is the guts needed to even contemplate the thought of sticking water inside your PC investment!

Thankfully that's something most will have already decided on beforehand, and if you decide to go down this track, I'd have to say this hardware is definitely a nice option. On the other hand, this is without question the type of product that most people should be weary of, because if you don't know your PC in and out, and how to do more than the average video-card-swap, it could be taking on more than you can chew. Even with the instructions provided it's still a pretty risky thing to do, because water, electricity, and PC components all in the same little space is nothing to be careless about. However, they've been proven to be very efficient and one of the best solutions around for cooling hot essential PC components, after all, you're car has a radiator doesn't it?

Having said all that, in place, their solution does the trick. This card has been seen to perform even higher than the default settings, all due to the water-cooling system in operation. The big thing to consider is the price, as the addition of the CoolFX label will cost you quite a bit more than the average fan/heatsink cooling solution adorned on the 7800GTX from the competition.

In use it's an excellent card, definitely faster than the last generation of Nvidia GeForce 6-series offerings, but not so fast that you'll want to dump an existing 6800Ultra for it just yet. However, this one is also ready for the new (but old) SLI setup option. Yes the 3Dfx technology gained by the purchase of 3Dfx by Nvidia many years ago is finally being put to use again and is now ready to unleash a little more pixel-pumping power. So if you can afford to spend enough for two of any of their current SLI-ready cards, you can gain an even more significant performance boost. At present, SLI hasn't proven to be able to offer twice the performance, for twice the price, but in many instances gains from 15%-20% have been achieved over a single card solution. There's definitely performance to be gained, and it's all a matter of how much it's worth spending to achieve those gains?

Visually it's offers excellent graphic quality with a few new bells and whistles, however, some are yet to be taken advantage of. This will change over time of course.

Pros

- Today's fastest Nvidia GPU in a package bred for pure performance.
- While somewhat risky, it's still a proven cooling solution for microprocessors, and this video card comes with an entire water cooling kit for the video card, one that could even be expanded to water-cool your CPU and Chipsets. If you are considering a water-cooling kit, you might want to look into this solution first and just expand upon it. Gainward offers all of the hardware needed to do it too.
- An excellent 7800GTX PCI-e video card.

Cons

- This is truly one of the most expensive 7800GTX solutions that money can buy.
- Water-cooling will definitely scare away those less tech-savvy individuals not able to handle setup of the water cooling system.

Check out **www.gainward.de** or **www.gainward.com** for more information.

Gainward Ultra/1960 XP GeForce 6600GT 128MB DDR3 AGP 8X Golden Sample (MSRP US$270.00)

Once again the Golden Sample treatment is on the menu, this time out with Nvidia's GeForce 6600GT series GPU at the helm. In all honesty, a GeForce 6600GT in general is still a very good video card for PC flight simulation and gaming, especially since they've dropped in price since the new GeForce7 series of GPUs have surfaced. This one, like the PCI-e 7800GTX we looked at is bred for performance, running at beyond the average Nvidia spec parameters - at 450MHz engine clock frequency. The 128MB of DDR3 is of the 2.0ns variety with a memory clock of 950MHz. Dual DVI connectors and a VIVO connector adorn the back of the card, and a DVI-VGA adapter is also included. The software bundle includes WinDVD, Muvee3 Autoproducer for video editing, and a driver and utilities disk with their proprietary "Expert Tool" software for tweaking the card.

In use the card is very stable and quite fast for a 6600GT-driven product, making it a step above the average 6600GT offerings. The TV-In and -Out capabilities offer HDTV-Out via Component Video, TV-Out via Composite and S-Video, all through the little VIVO dongle/cable that plugs into the back of the card. So it combines excellent multimedia functionality with a powerhouse 6600GT GPU clocked at speeds that most average 6600GT-based solutions couldn't handle reliably.

Pros

- Faster than the average 6600GT-based solution, the Golden Sample treatment is a plus indeed.
- A perfect solution for AGP-based flight simulation rigs looking for a little more speed.
- The 6600GT in general is quite affordable now.
- HDTV-Out, S-Video-Out, Composite-Out, and Video-In as well - offers excellent multimedia capabilities

Cons

- The VIVO connector is a little too loose, and with all of the wires running from it, it tends to fall off when any of the wires are tugged.
- All of Gainward's Golden Sample cards are priced a little higher than competitor's offerings, but this is to be expected to some degree given the performance enhancements.

Check out **www.gainward.de** or **www.gainward.com** for more information.

Saitek Eclipse Keyboard USB (MSRP US$50.00)

Illuminated keyboards are a new trend, and Saitek has stepped up to the plate with the Eclipse. It features their patented 'TrueVu' key illumination technology, claiming it's ideal in any light, from day to total darkness. It's a nice looking keyboard visually too, a very striking design, with a black frame and aluminum-brushed looking keys with laser-cut lettering. Three different illumination settings are also offered to accommodate the different lighting settings that may arise. It's both backlit and blue LED illuminated too. They've essentially improved upon their previous Gamers Keyboard design, and that's not at all a bad thing. The Eclipse has a good solid feel to it as well, and the wrist-rest is also adjustable.

Pros

- Completely illuminated, ideal for late night flights/gaming!
- Includes a few hotkeys for fiddling with system volume and mute functions.
- Adjustable wrist-rest.
- Support for Win98, Me, Win2000 and XP.
- USB

Cons

- It's not cordless.

Head over to **www.saitek.com** for full product information.

ROUNDROBIN ADVENTURE

FEDERAL EXPRESS REGULAR TRANSPORT ROUTE

BY AL PELLETIER

If you have undertaken previous Round Robins, skip the next paragraph, jump right in, and have fun. For those who are new to this, Round Robins are published with the intent of having Flight-Simmers fly, look at the scenery, refresh our Geography, practice our cross country navigation, perform approaches at different airports all over the world, and have some FUN. In the message, you will be receiving info like: airport departure and runway number, VOR'S and NDB's enroute, two or three middle airport destinations, for VFR or INST approach, and back to your point of departure (Round Robin). You will also be given ILS and LOM freq., minimums, procedures etc. and a little background on the geography of the area. After you fly a few of these, you will have a much better command and understanding of the different types of published procedures. You will learn to handle a lot of information in a very short time, while still maintaining control of your aircraft..

Round Robin adventure: Federal Express (Fedex) regular transport route in Eastern Canada. It was flown with Microsoft FS2000\FS2002\ FS2004 but can be flown with any Flight Sim that has the required Airports and Navaids included in its own database.

Great add-ons for this flight:

(Most freeware files can be found at flightsim.com or avsim.com)

Aircraft and Panel: I used the awesome Dreamfleet2000 727-200 in Fedex livery. This 727 rendition is nothing short of awesome and has raised the bar one more notch for Flight Sim. You can purchase it (well worth it) at: **http://www.dreamfleet2000.com**

Scenery: I always enhance my scenery with FSGENESIS add-on textures which can be found at **http://portal.fsgenesis.net/** Montreal airport scenery enhancement **cyul9up1.zip** can be found at **www.flightsim.com** and is by a group named Quebec Virtual Pilot.

Aircraft and panel: There are also numerous Boeing 727 packages available at **www.avsim.com** and **www.flightsim.com**

Al's Flight Sim tip for this month's flight

This Dreamfleet2000 727-200 drove in the point, again, that you must do quite a bit of pilot training before setting out on a long Night/IFR route in a new airplane type. If you purchase this plane, take some time and learn all the systems, and read the manual and checklist. This is what makes Flight Sim so interesting and challenging. All of the systems of the actual 727 are well represented. I have an original Ops manual of United Air Lines 727 along with training manuals and cockpit diagrams. The Dreamfleet 727 is so close to the real thing that it is just amazing. I will post some training aids at the Computer Pilot web site, along with the other high resolution charts and maps.

(A lot of notes regarding ATC will pertain only to FS2002\FS2004 users)

May I suggest, that you READ the route a couple of times before starting out, so that you'll have the flight plan fairly clear in your mind. Especially in a fast medium or large jet aircraft, there isn't much time to spare and definitely no room for errors.

The scenario and tasking for this exercise: We are flying for **Fedex** on the Boeing 727-200. This flight is also a "true" Fedex route. **First** "*the airplane*": I strongly recommend that you visit the Dreamfleet2000 team at **http://www.dreamfleet2000.com** and, if you have the spare change, purchase the 727 package. It will totally change your Flight Sim experience. Again, as mentioned above, I suggest that you read the manual before attempting to fly this aircraft. **Second,** This route is also based on a true flight. It would, normally, totally be flown in **NIGHT/IFR** conditions. I have adjusted some of the times to give you a bit of daylight flying. This flight also takes place during the month of November and, in that part of the world, the weather can be pretty nasty. I will leave most of that to your preferences. Just make sure that you set the winds to correspond with the suggested runways below. The fun thing about these Round Robin adventures is that you can change the weather and times and totally change the dynamics of the route and flight experience.

Round Robin Adventure:

Toronto Pearson Intl (CYYZ) >>> Montreal Pierre Elliott Trudeau Intl (CYUL) >>> Quebec Jean Lesage (CYQB) >>> Montreal (CYUL) >>> Toronto (CYYZ).

Approx total distance 800 NM.

NOTE: *For the purpose of these exercises, we will assume that we are receiving Radar vectors to different VOR's or ILS interception points. In the "Real" world of today, aircraft usually receive vectors to the interception points, to ensure proper separation. I'm also assuming that you will have a good look at the Approach plates for each segment.*

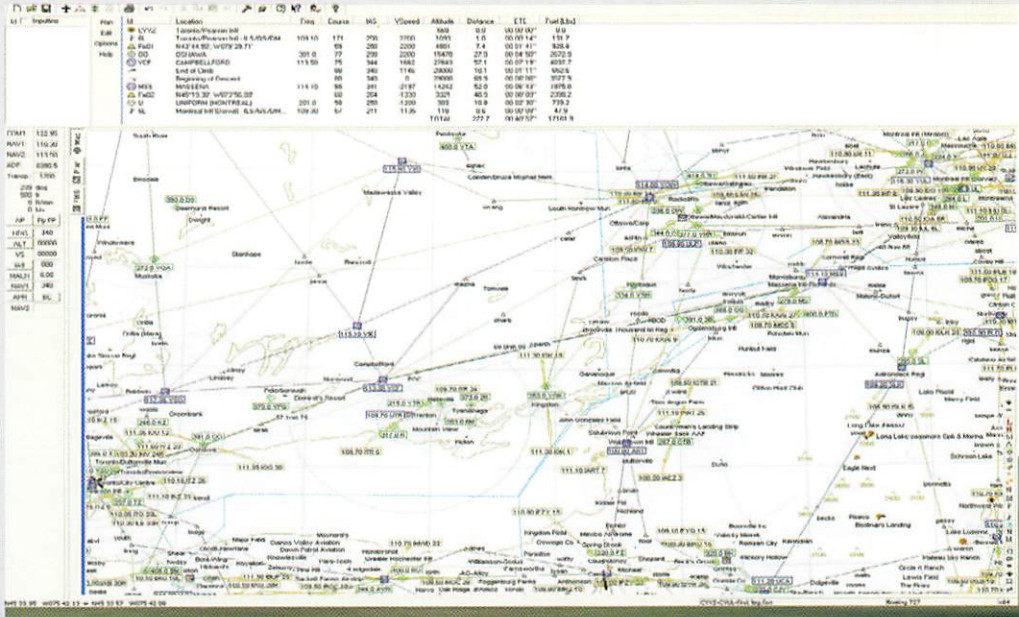
One more note. If you are using ***ATC*** *for take off, taxi and landings, you might be given different RWY or taxi way, depending on the weather. You might even input the whole trip in a FS flight plan and fly it that way.*

BEGIN

First leg: Toronto Pearson Intl (CYYZ) >>> Montreal P.E. Trudeau Intl (CYUL) Approx 280 NM.

- Clock to 1430L, **season fall (November)**. Weather: Overcast cumulus based at 2000 tops 14000, wind 075/15G22, and precipitation moderate snow with 2 NM visibility. Temp 22F Dew Point 24.
- Select Toronto Pearson Intl under airports Gate G26.
- Dial in the OSHAWA (OO) NDB frequency 391 on your NDB. Also dial in the Campbellford (YCF) VOR frequency 113.50 on your NAV 2.
- Taxi to and Take off (T/O) RWY 06R (for a Lester Seven Departure. Climb RWY (runway) HDG (Heading) to 5000, then turn right to HDG 075 and track the YCF VOR to on top, and continue climb to 29,000'. (The reason for having the OO NDB tuned in is that you should be flying right over it. Just one more navaid to help you along).
- On top the YCF VOR, turn right HDG 088. Dial in and track the MASSENA (MSS) VOR frequency 114.10 to on top.
- Enroute, dial in the LOC IUL frequency 109.3 and tune in the NDB VALOIS (ZDU) frequency 201 in preparation for an ILS to RWY 06L at Montreal (actual RWY HDG 058, RWY length 11,000 and elevation 117).
- 7 NM out of the MSS VOR, begin descent to 3000.
- On top the MSS VOR turn left HDG 068 to intercept the LOC and continue descent to 3000 (this should keep the NDB/LOM ZDU just slightly right of the nose).
- Intercept the LOC and continue with the approach.
- 5 NM back, you are cleared for a full stop to RWY 06L at Montreal. Check gear down and locked.

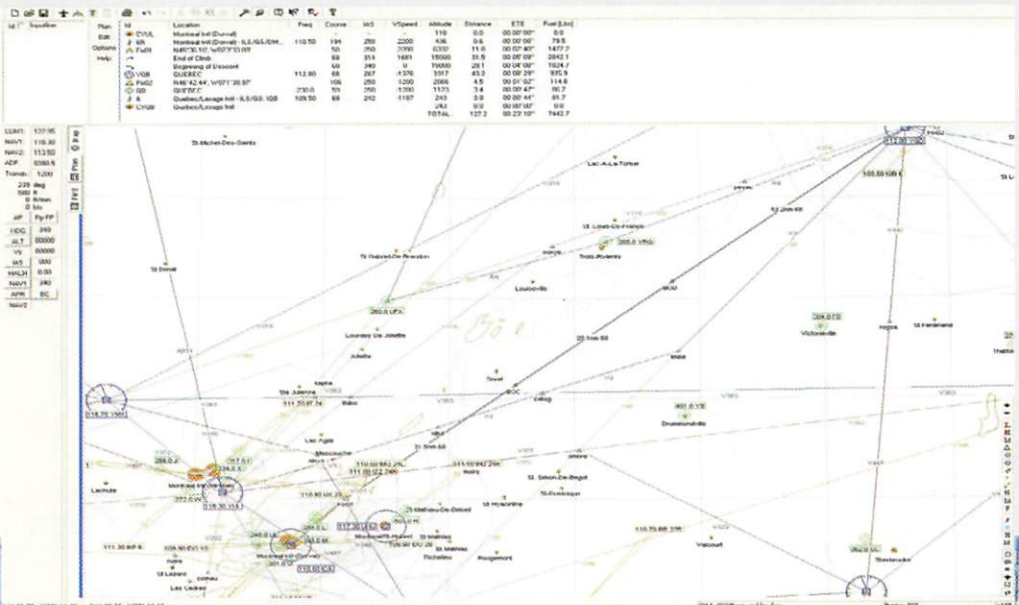
Land at Montreal and take first right and taxi back to cargo area, which is located just to the east of RWY 06L threshold.



Second leg: Montreal (CYUL) >>> Quebec Jean Lesage Intl (CYQB) Approx 145 NM.

- Clock to 1900L. Weather remains the same as leg 1 (nasty winter conditions).
- ***Adjust your fuel to be at landing weight in Quebec City. For this flight you should take on about 27,000lbs on the 727-200 with 40,000lbs of cargo. Our Max Landing Weight will be 150,000lbs. We will burn about 11,000lbs for 1.0 hour flight. We need enough fuel to come back to Montreal should Quebec close in on us. The total payload with a full fuel load is normally 50,430lbs but we can't take that on this short haul.***
- Dial in the QUEBEC (YQB) VOR frequency 112.80 on NAV 2. Since this is a very short flight, let's get ready for our approach by dialing the LOC IQB frequency 109.5 and setting course 062 on our NAV-1 OBI. You can also tune in the QUEBEC NDB (QB) frequency 240 on our ADF in preparation for an ILS to RWY 06 at Quebec (actual course 062, RWY length 9000 and elevation 244).
- Taxi to and T/O RWY 06R, climb RWY HDG to 5000 followed by a right turn to HDG 068, track the YQB VOR to on top and continue Climbing to 17000.

NOTE: *Take the time to go to the Computer Pilot web site, using your download code. There, you will find a lot of charts and maps, in high resolution, that didn't make it in the magazine article, for lack of space. I take a lot of time researching and scanning these for you and you'll probably find some very interesting maps and charts that you will hang on to for a long time.*



- 50 NM out of (before) the YQB VOR, begin descent to 4000 and reduce to approach speed in preparation for our final approach.
- On top the YQB VOR turn right HDG 106, descend to 2500 to intercept the LOC.
- Continue with the approach.
- 5 NM back, you are cleared for a full stop to RWY 06 at Quebec's Jean Lesage airport. Check gear down and locked.

Land at Quebec and take first right and taxi to the cargo area, located at the far end, near the RWY24 threshold.

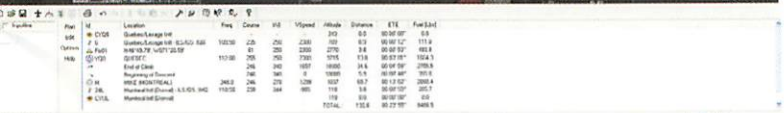
Third leg: Quebec Jean Lesage (CYQB) >>> Montreal (CYUL) Approx 120 NM.

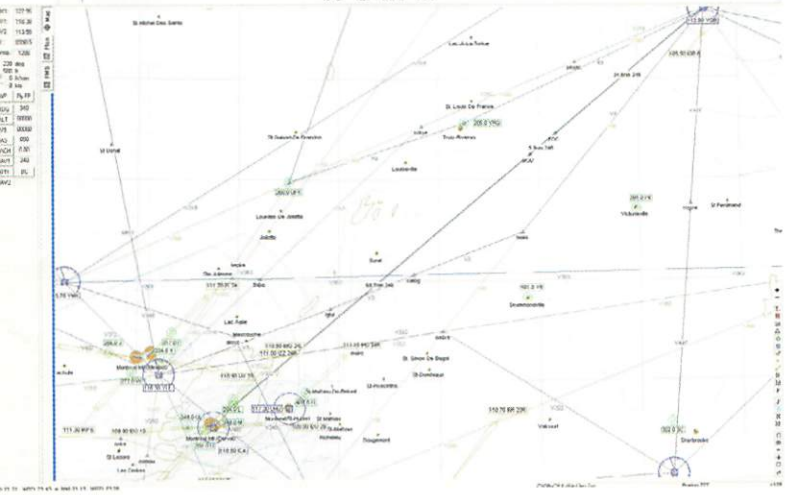
- Clock to 2200L. Season winter. Weather still as for the first leg, except the wind has changed to 270/15.
- You airplane should be parked at the Cargo area at the north-east end of the Airport. Again just 27,000lbs of fuel on the 727-200
- Dial in the QUEBEC (YQB) VOR/DME frequency 112.80 on NAV-2. Again, since this is a short flight, let's get ready for our arrival by dialing in the LOC IMQ frequency 110.5 and setting course 238 on our NAV-1 OBI. Also tune in the MIKE (M) NDB frequency 348 on your ADF in preparation for an ILS to RWY 24L at Montreal (Actual course 238, RWY length 9600 and elevation 117) ***A couple of notes here. First, there is no working DME frequency in flight sim for this approach. In actual life there is a DME frequency available. Secondly, the MIKE NDB is now named ROCKLAND (ZUL) with the same frequency. This is the one you will see on the chart. The updated scenery mentioned above fixes these problems.***
- Taxi to and T/O RWY 06. Climb RWY HDG to 2500, followed by a left hand turn to HDG 248, track the YQB VOR to on top and continue climbing to 18,000.
- On top the YQB VOR, turn left HDG 248 and fly down the 248 radial of the YQB VOR.
- 50 NM passed the YQB VOR, begin descent to 3000.
- Home the Mike NDB to Intercept the LOC. Continue with the approach.

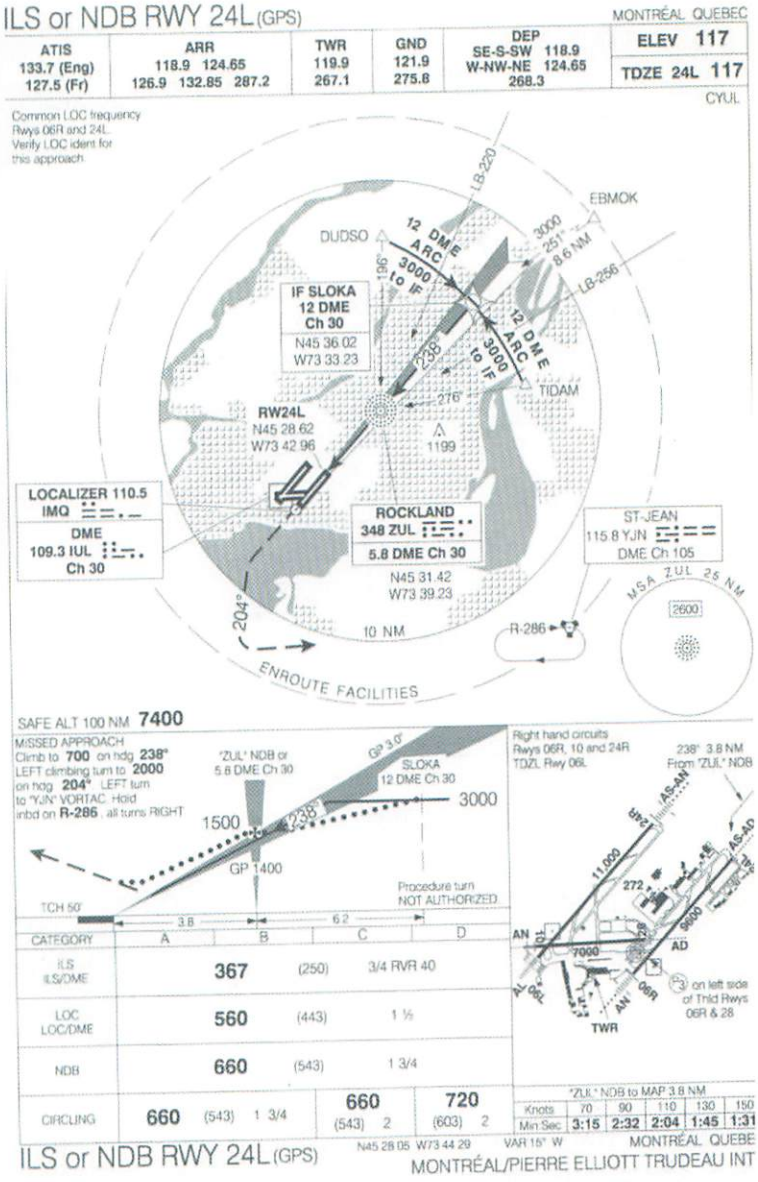
NOTE: Since there were no DME on this approach and no VASIS at RWY 24L, do not descend below 1500 until over the MIKE NDB.

- 5 NM back, you are cleared for a full stop to RWY 24L at Montreal. Check gear down and locked.

LAND at Montreal and take first far right to cargo area.






ILS or NDB RWY 24L (GPS)
MONTRÉAL QUEBEC
ATIS 133.7 (Eng) 127.5 (Fr)
ARR 118.9 124.65 126.9 132.85 287.2
TWR 119.9 267.1
GND 121.9 275.8
DEP SE-S-SW 118.9 W-NW-NE 124.65 268.3
ELEV 117
TDZE 24L 117
CYUL
Common LOC frequency Rwys 06R and 24L. Verify LOC ident for this approach
DUDSO
EBMOK
TIDAM
IF SLOKA 12 DME Ch 30
N45 36.02 W73 33.23
RW24L N45 28.62 W73 42.96
1199
ROCKLAND 348 ZUL 5.8 DME Ch 30
N45 31.42 W73 39.23
LOCALIZER 110.5 IMQ
DME 109.3 IUL Ch 30
ST-JEAN 115.8 YJN DME Ch 105
10 NM
ENROUTE FACILITIES
SAFE ALT 100 NM 7400
MISSED APPROACH
Climb to 700 on hdg 238° LEFT climbing turn to 2000 on hdg 204° LEFT turn to "YJN" VORTAC. Hold inbd on R-286, all turns RIGHT
"ZUL" NDB or 5.8 DME Ch 30
SLOKA 12 DME Ch 30
GP 3.0°
GP 1400
1500
3000
Procedure turn NOT AUTHORIZED
TCH 50'
3.8
6.2
Right hand circuits Rwys 06R, 10 and 24R TDZL Rwy 06L
238° 3.8 NM From "ZUL" NDB
CATEGORY A B C D
ILS ILS/DME 367 (250) 3/4 RVR 40
LOC LOC/DME 560 (443) 1 ½
NDB 660 (543) 1 3/4
CIRCLING 660 (543) 1 3/4 660 (543) 2 720 (603) 2
"ZUL" NDB to MAP 3.8 NM
Knots 70 90 110 130 150
Min:Sec 3:15 2:32 2:04 1:45 1:31
N45 28 05 W73 44 29
VAR 15° W
MONTRÉAL QUEBE
ILS or NDB RWY 24L (GPS)
MONTRÉAL/PIERRE ELLIOTT TRUDEAU INT

Fourth leg: Montreal (CYUL) >>> Toronto Pearson Intl (CYYZ) Approx 310 NM.

- Clock to 0100L. Season winter. Weather still as last leg.
- Your airplane should be at the Cargo area near the threshold of RWY 06L.
- Dial in the MASSENA (MSS) VOR frequency 114.10 on NAV 1.
- Taxi to and T/O RWY 24R, right climbing turn to 31,000', HDG 246 and track the MSS VOR to on top.
- On top the MSS VOR, turn right HDG 267. Dial in and track the CAMPBELLFORD (YCF) VOR frequency 113.50 to on top.
- Over the YCF VOR, turn left HDG 240, and begin descent to 3000. Fly down the 240 radial of the YCF VOR.
- Enroute, dial in the LOC ILE frequency 110.3 and set course 327 on your NAV-1 OBI in preparation for an ILS to RWY 33R at Toronto (actual RWY course 327, RWY length 11,050 elevation 569).
- 78 NM out of the YCF VOR (we are now at an intersection named RCRCP, over the lake) turn right HDG 288 to intercept the LOC.
- Continue with the approach.
- 5 NM back, you are cleared for a full stop to RWY 33R at Toronto's Pearson. Check gear down and locked.

Land at Toronto and take first right exit to cargo area

Welcome home

END

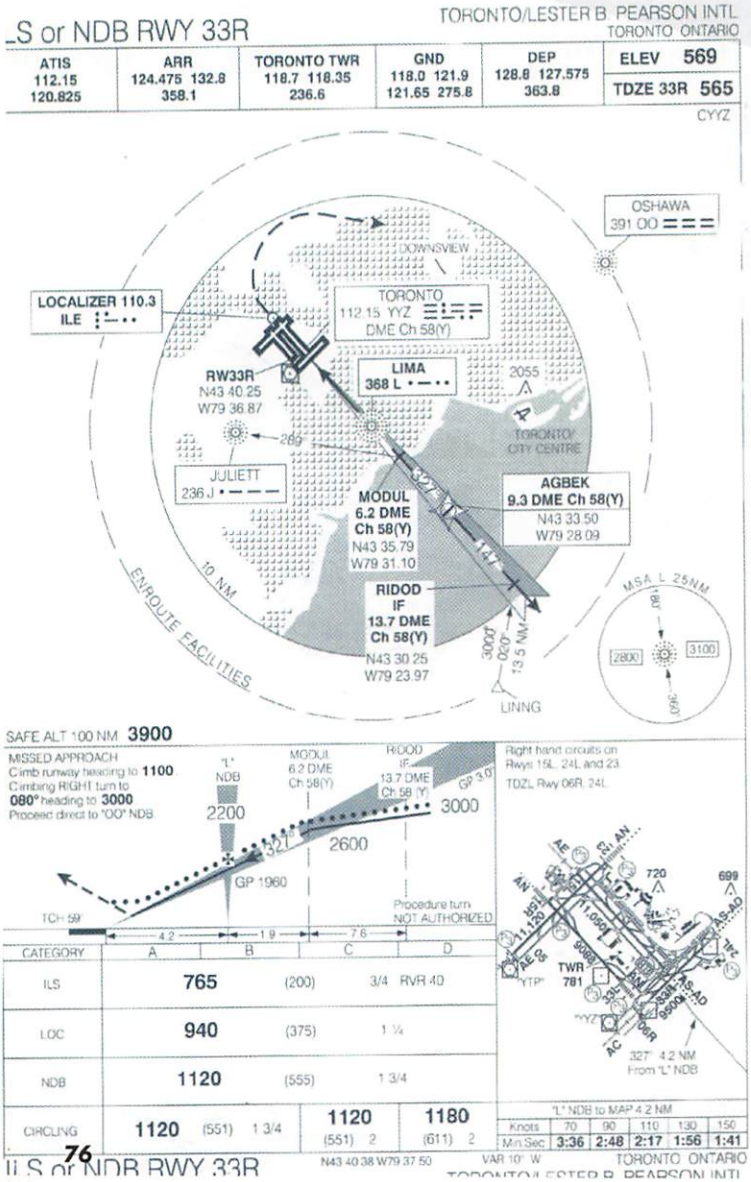
Al's thank you box:

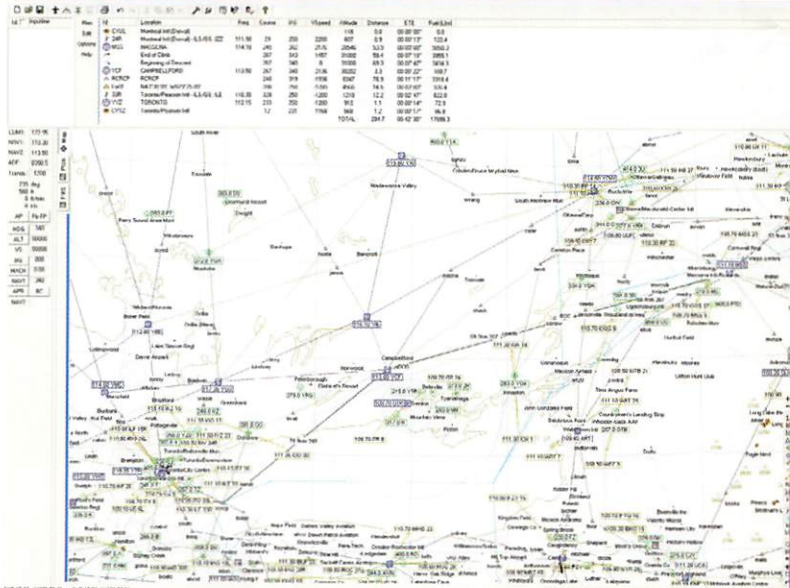
Without the people below and our payware/freeware designers, I couldn't write these articles. So my sincere thanks to all those and to flightsim.com and avsim.com

1. Quotes and photos from ***Airways*** magazine are courtesy of and with permission of the Editor. Many thanks!
2. To Chris Squire for test flying the route. Chris is a retired military pilot with over 12,000 hours of flying time.
3. I use **FSNavigator** for all by flight planning, a courtesy of the FS Navigator team.
4. To **Justin Tyme** (FSGENESIS) and to **Ruud Faber** (**www.fscene.com**) for the great terrain textures, that make my writing so much more enjoyable.
5. To the **Dreamfleet2000 team,** for letting me have a copy of the 727-200. Just awesome!
6. To AVSIM and FLIGHTSIM.com for being there!

Cheers and keep on reading Computer Pilot

Al





COMING UP...
...in the November Issue

VFR: Papua New Guinea
Here's a country that most readers have probably never flown their flight sims around, but Papua New Guinea (north from Australia) has some interesting geography that makes for very interesting flights. David Wilson-Okamura continues his "Free Flying" VFR series next issue with a trip south of the Equator.

AOPA's Chelton-Equipped Commander
David Ison takes a look at a project developed between the Aircraft Owners and Pilot's Association (AOPA) and Flight 1 to provide a free Commander aircraft to FS2004 users featuring Chelton flat panel displays. Plus, we discuss glass cockpits in general and discover their usefulness in modern aircraft.

Who's In Control? – Ground Control
This is the second part in a series of articles on the art of air traffic control (ATC). This month we take a look at the roles and responsibilities of the Ground Controller and how pilots should effectively communicate with this vital link in the ATC chain.

Making the Tough Decisions...
Has purchasing flight sim add-ons become a dreaded experience? With so many packages and add-ons out there, all offering the latest and greatest technology and 'realism' options, how will you decide which one to buy? Francois Dumas comes to the rescue with practical tips on choosing the right software add-ons for your needs.

"TaxiDraw" for X-Plane
Chuck Bodeen shows X-plane users how to easily add and modify X-plane airport scenery using a free utility originally created for the FlightGear project!

Under Arrest!
Arrestor Cables that is... Peter Stark looks at simulating aircraft carrier operations with both freeware and commercial software packages available for Flight Simulator.

Reviews
We have planned reviews of these great new flight simulation products:
• PMDG's *747 Queen of the Skies* • Just Flight's *Flying Club*
• Wilco's *Caravan Deluxe!* • Aerosoft's *Seahawk & Boxer*

PLUS

The Best Flight Simulation Lessons in any Flight Simulation Magazine!
We have the next lesson from Doug Horton's Instrument Rating series, plus an informative and useful lesson on Flying DME Arcs with Ben Ippolito. Additionally, we take a look at Human Factors and their considerations for flight simulation.

AND EVEN MORE WITH

INBOX
Where readers get to voice their opinion!

Horton's Hints for FS2004
Tips to help you master the simulator.

Pullout Poster
Quality aviation images to hang on your walls.

News & New Releases
The latest news information from around the flight sim world.

• Landing *November* 2005 •

Subscribe online now at www.computerpilot.com to have your magazines home delivered for *6, 12, 24 or 36 issue periods!*

WIN A SUBSCRIPTION to Computer Pilot Magazine

Have something to say about the flight simulation hobby? The flight simulation community, or just a rant or rave about anything simulation or aviation related?

Send your letters of 400 words or less to inbox@computerpilot.com for your chance to win a free 12 month (12 issue) subscription – or extension if you already subscribe – to Computer Pilot. Each month, we will choose the best letters with the best angle/take on a flight simulation topic and publish them in our Inbox column.

Have Your Say!

Many articles appearing in Computer Pilot magazine are a direct result of your emails and feedback. If you have a topic you would like us to cover, or just have some general constructive magazine feedback, let us know and we will do our best to address your request/feedback. Send your comments, article ideas or suggestions to editor@computerpilot.com

While we may not be able to personally answer them all, we do read every email and take your feedback onboard for planning of future issues. It's **your way** to make an impact on the content and direction of the magazine!

SAVE 5% OFF YOUR SIM PURCHASES AT PC AVIATOR

As a valued subscriber to Computer Pilot Magazine - the world's only monthly 92-page flight simulation publication – you are entitled to 5% off the purchase price of flight sim hardware and software purchased through PC Aviator Direct, and this applies to our regular every day specials and reduced item prices as well!

With over 14 years of service to the flight sim community, PC Aviator is one of the most well known and trusted flight sim retailers in the business offering an extensive range of flight sim software, controllers, desktop avionics units, flight sim books, airliner DVDs, computer peripherals, and much more. We have two retail outlets – one in the USA and one in Australia, and we ship to anywhere in the world with competitive freight prices!

Our online store is open 24/7, 365 days a year for you to browse through our huge selection of flight sim gear, or to place an order online at your convenience. We also fill gift orders and can arrange bulk orders for flight sim groups at special discount prices.

For all your flight simulation needs, PC Aviator is your one-stop flight sim shop! We are open right now for your convenience at **www.pcaviator.com**

Remember that you can earn 5% OFF just for being a Computer Pilot subscriber!

Not a subscriber? Point your browser to the Computer Pilot Website at **www.computerpilot.com** and subscribe today. Subscriptions also greatly reduce the cost (per issue) of the magazine!

Training for an Instrument Rating PART II

BY DOUG HORTON

Last month, I highlighted the U.S. requirements for obtaining an Instrument Rating, and I described the notions of *attitude instrument flying* and *instrument scanning* in the FS2004 instrument flying lessons. In this issue, we'll cover the FS2004 instrument lesson on VOR approaches and the solo flight practice of a VOR approach. I'll also relate some of my experiences in learning two significant instrument rating requirements that are not covered in the FS2004 instrument lessons.

During the lesson and solo flight, you'll need to rely upon instrument scanning. As we discussed last month, developing an effective instrument scan is most important, because when flying on instruments only, the pilot must ignore the physical suggestions of their body ("seat of the pants," inner ear, etc.) in relation to the aircraft's attitude and flight condition. Instead, the pilot must rely solely on instrument indications. There are many accepted patterns for scanning the main flight instruments, such as radial and circular scans. Regardless of the scanning pattern, the attitude indicator (AI) is "home base" for scanning, as indicated by the gold arrows in the accompanying screenshot of radial scanning. The scan must identify values on the six primary flight instruments and reveal trends in the indications, such as increasing altitude or decreasing airspeed. The circular scan begins with the AI and progresses clockwise around the "big six" instruments back to the AI, and some instructors suggest that you must keep a "peripheral eye" on the AI during the circular scan. There are other scanning patterns that can be used when turning or climbing, for example, which focus on the instruments that should be indicating changes during these maneuvers.

THE "RADIAL SCAN" INCLUDES THE ATTITUDE INDICATOR AS "HOME BASE," WITH OTHER FIVE PRIMARY INSTRUMENTS.

Importantly, the pilot must also recognize inconsistent indications that might be caused by instrument failures. For example, a failure of the AI will likely cause the instrument to indicate a climbing or descending turn. This failure can be verified if the remaining instruments agree or don't agree, such as the heading indicator and turn coordinator not indicating a turn, and the altimeter, vertical speed indicator, and airspeed indicator not indicating a climb or descent.

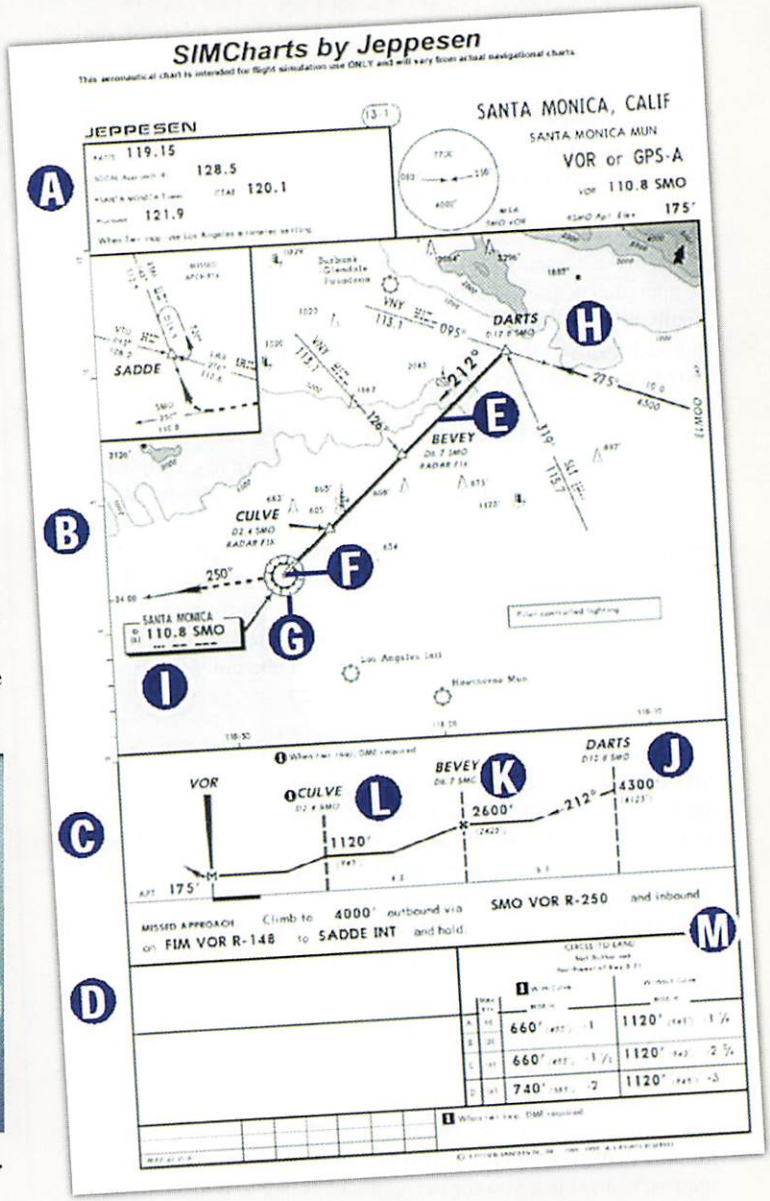
The final step of attitude instrument flying is taking control action based on the instrument scan and its interpretation. For straight and level flying, for example, this would include making small corrections of pitch or bank to maintain altitude and heading respectively. During a right turning climb, as another example, you initiate the climb by pitching up and simultaneously initiate the turn by banking right. While, initially, you monitor the AI to see the pitch and bank changes, you would also look for indications of the climb on the airspeed indicator (decreasing), altimeter (increasing), and vertical speed indicator (positive rate), and you would see indications of the right turn on the heading indicator and turn coordinator. In this case, all of the "Big 6" instruments would show indications of the climbing turn, and the scan must interpret the indications of all six for consistency with the intended maneuver. Also, the instruments must indicate that the aircraft is climbing and turning at appropriate rates. By the way, in the case of a climb, you would generally also increase the throttle setting, monitoring this action on the tachometer (or manifold pressure gauge on aircraft with constant-speed props), as well as the airspeed indicator. Many instrument instructors teach the primary and supporting functions of instruments and the included panel screenshot provides another look at this concept. The tachometer or manifold pressure gauge is often considered a seventh instrument that should be included in the scan.

PRIMARY AND SUPPORTING FUNCTIONS OF THE "BIG 6" INSTRUMENTS.

FS2004 Lesson 1: The VOR Approach

Most veteran flight simmers are familiar with flying ILS approaches, which in real flying are classified as precision approaches. Importantly, many smaller airports do not have ILS approach equipment installed and may instead have one or more non-precision approaches, such as a VOR approach. Even airports with ILS approaches often have several non-precision approaches as backups to ILS approaches, in case the ILS equipment is out of service.

The FS2004 lesson on VOR approaches uses as an example the VOR approach at Santa Monica, California (KSMO). The accompanying figure includes alphabetical identification of the key components of the associated instrument approach chart. The thick black line located in the plan view (E), running from right to left down toward the airport, is the instrument approach course that takes you to the airport (F). Notice that the VOR approach course is 212 degrees toward the Santa Monica VOR, which provides the navigation signal for the approach. The VOR station is located on the airport at position G. While you're tracking the 212 degree course, you're also descending to lower minimum altitudes, as shown in the profile section (C) of the approach chart.



APPROACH CHART FOR SANTA MONICA (KSMO).

Here's how the FS2004 instructor suggests you fly this approach. Assume that your airplane is located at the DARTS intersection (H) – the beginning of the VOR approach course. To get to DARTS and get onto the approach course, ATC will either give you radar vectors (headings) to intercept the approach course, or you can fly a VOR course that leads you to it, such as from the VNY VOR radial 095.

To fly the 212-degree course to the VOR, tune your navigation receiver Nav1 to 110.8 MHz, which is shown on the chart at position I, and then set your Nav1 OBS to 212 degrees. This heading will align you with the approach course. From here, you begin tracking the 212-degree course to the airport. In real flying, you'd also activate the audio ID of the VOR transmitter and verify that it is

sending the Morse code shown for S(···) M(--) O(---). This can be accomplished in FS2004 using the Nav1 radio ID feature and pressing the Nav1 button on the communication audio control to listen to the VOR ID code.

The profile section (C) shows that once you're past DARTS intersection, you can descend to an altitude of 2,600 feet MSL during the segment from J to K. Since the lesson airplane has distance measuring equipment (DME), you can obtain a DME reading from the Santa Monica VOR to compare with the distances shown at J, K, and L. When the DME shows 6.7 miles, you're at BEVEY intersection (position K), assuming you're on the approach course, and you can descend to 1,120 feet during the K to L approach segment. There is no glideslope information with VOR approaches, so you make descents in steps to keep above obstacles located along the approach course, and as you get closer to the airport, the obstacles usually aren't as tall. Therefore, you fly progressively lower on the approach course as you approach the minimum descent altitude (MDA) as described below.

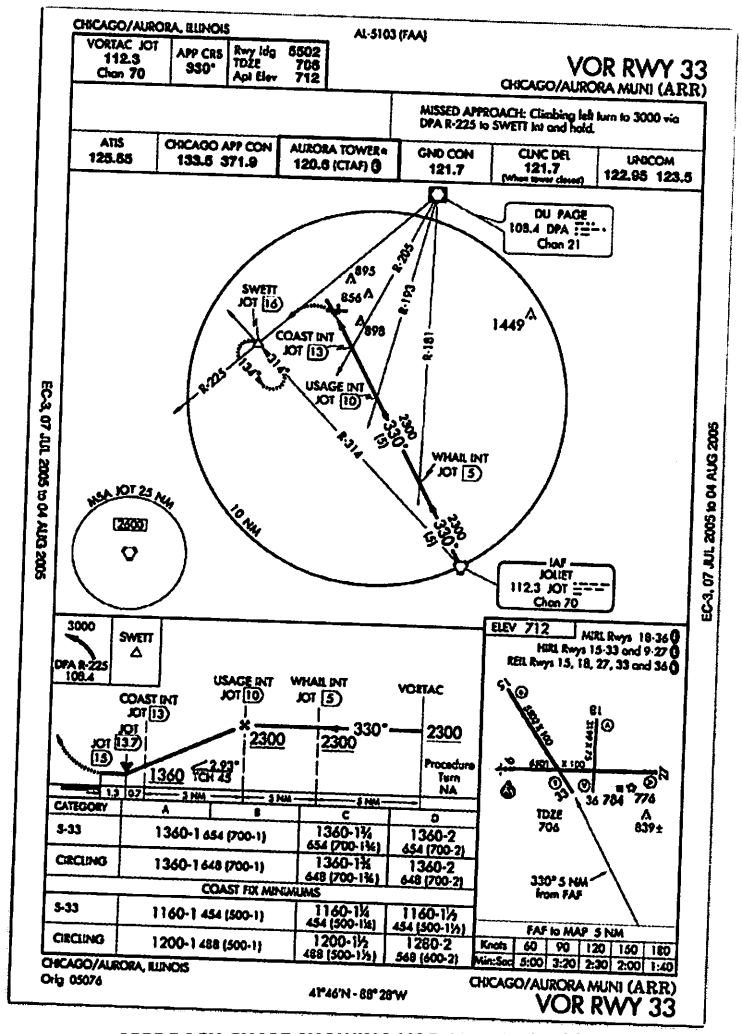
Finally, when the DME reads 2.4 miles, you're at CULVE intersection (L). Since no lower altitudes are shown in the profile view, you need to go to the minima section – the section of the approach chart that identifies the lowest altitude to which you are allowed to descend on this instrument approach (shown in section D). The minima section shows 660 feet as the MDA. To go any lower, you must have the landing runway in sight, by seeing any one of several required runway features specified in regulations, such as the approach lights. Also, to go any lower, you must have visibility of at least one mile, as shown in the minima section next to the 660 foot MDA.

If you don't have the runway in sight by the time you reach the MDA, which is over the VOR, you're required to execute a missed approach. In this case, if the VOR flag changes from TO to FROM, and you don't have any of the required runway indications in sight, you must fly the missed approach procedure, which is specified in the M block. This procedure takes you to a safe altitude from which you can fly another approach, which might be another try of the same approach, a different approach to the same airport, or an approach to an alternate airport.

Not covered in this lesson is related ATC communication during the approach. Among other communication, at some point as you are vectored to the approach, ATC will indicate your position, provide you with a course to intercept the approach course, direct a minimum altitude until you are established on a published segment of the approach, and clear you for the approach. I like to remember the acronym "PTAC" for this communication: Position, Turn, Altitude, Clearance. This is a significant, required communication, and it must be read back and followed precisely. Later during the approach ATC will direct that you call the control tower or, in the case of an non-towered airport, change to the common traffic advisory frequency. These communications are fully simulated in FS2004 if you've filed an IFR flight plan and you're flying with FS2004's ATC.

The Santa Monica VOR approach includes flying toward the VOR station. In this case, there is greater accuracy of the OBS indication as you fly toward the airport because the radials are closer together as you approach the VOR station. The lesson reading material also covers flying away from the VOR, in which case the OBS indication becomes less accurate as you fly toward the airport. The reading also covers flying to the VOR, then flying outbound to execute "procedure turn." This will be practiced in the flying part of the lesson.

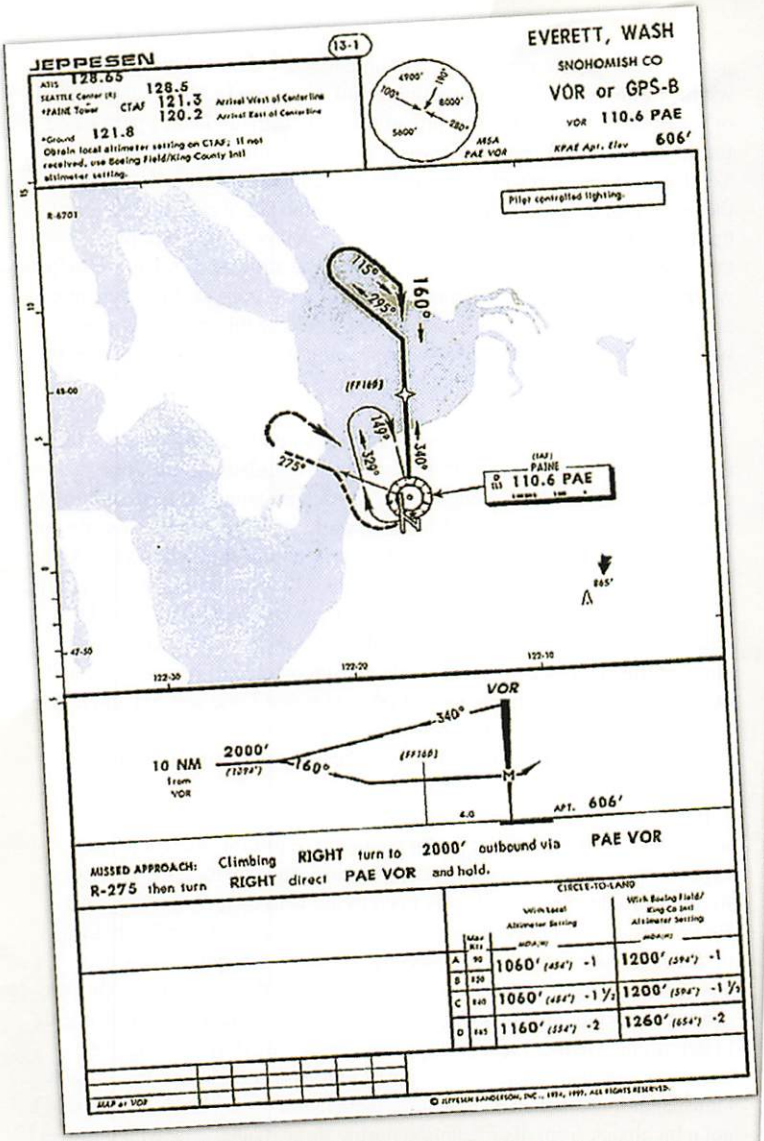
Many VOR approaches include an approach course that is not to any particular runway, such as the Santa Monica VOR approach. In these cases, you "circle-to-land" on whatever runway is active for landing, and the minima section includes only minima for circle-to-land. For my home airport of Chicago, Aurora, the VOR Runway 33 approach includes flying away from the Joliet (JOT) VOR. On the chart for this approach, minima are provided for both Runway 33 and circling to land on other runways. The second set of minima, which include lower minimum descent altitudes, can be used if your avionics equipment enables locating the COAST intersection. The A, B, C, and D columns of the minima section relate to ranges of approach speeds, and your training aircraft is in the A category.



APPROACH CHART SHOWING VOR APPROACH COURSE FLOWN AWAY FROM THE VOR STATION.

The flying part of this lesson starts in the air for flying the "full" VOR approach into Snohomish County Airport (Paine Field) KPAE. The approach chart is included in the lesson briefing, and you can print it. Note that this approach is no longer effective, as it has been replaced by the VOR Rwy 16R approach, which changes the previous approach course from 160° to 140°.

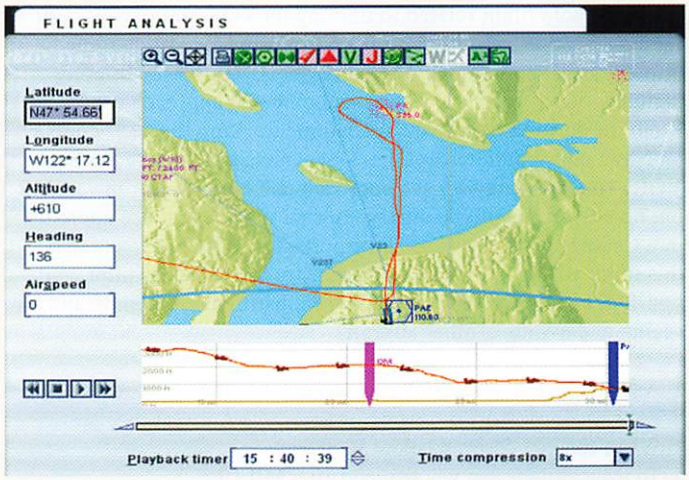
From the lesson starting point you'll track east toward the VOR, fly over the VOR, turn outbound on the 340° radial, fly a course reversal maneuver (procedure turn), fly the approach course of 160° while descending to an MDA of 1160 feet MSL, look for and identify the runway, then land on Runway 16R, at an airport elevation 606 feet MSL.



VOR APPROACH USED FOR LESSON ON VOR APPROACHES.

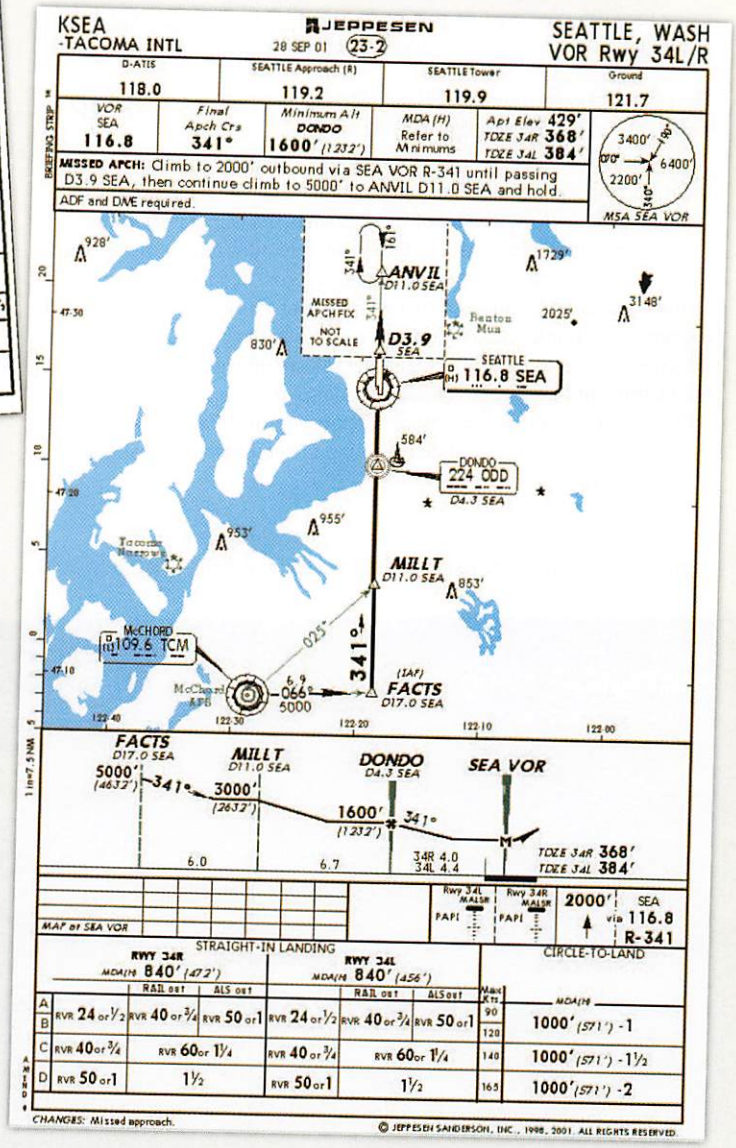
The FS2004 flight instructor will help you set the navigation radios and instruments, and he suggests being careful not to chase the VOR needle when crossing the VOR. As you approach the VOR the needle will become more sensitive and swing to one side or the other. As you cross the VOR and turn to the outbound course of 340°, change the OBS to 340° and hold your heading until the VOR needle becomes more stable again, then change your heading to center the needle. The instructor will coach you to use the aircraft clock's timer function for the procedure turn.

On my first try of this lesson, I missed the instructor's coaching me to descend to 2000 feet on the outbound leg, there was no further prompt, and though my instruments indicated I was tracking closely on the 340° radial outbound, the lesson programming sensed that I was distracted and suddenly ended the lesson. The lesson prompt was indicating that I should come left to track the outbound course, though my Nav1 OBS needle was lined up perfectly on 340°. In my real instrument lesson experience, my instructor coached me to correct my actions, not suggest that I was distracted and end the flight. Fortunately, my second try was successful and I heard "good job" after landing. This lesson is very instructive, but there's a lot happening, and you'll need to pay close attention. The lesson ends with the flight analysis screen, with which you can compare your actual track with the approach chart.



FLIGHT ANALYSIS SCREEN AT THE END OF INSTRUMENT LESSON 1.

FS2004 Solo Flight: VOR Approach



SOLO TRAINING ON VOR APPROACHES INCLUDES FLYING THE SEA VOR APPROACH TO RUNWAY 34R.

For the solo flight related to training on VOR approaches, you'll fly the FS2004 Cessna 172 on the VOR Runway 34R approach into Seattle-Tacoma International (KSEA). The lesson briefing includes a link for you to print the applicable approach chart. From the starting point, you'll continue tracking the 025° course on Nav2 until you intercept the 341° course on Nav1 to the SEA VOR. You're cleared for the approach and landing on runway 34R, but note that it would be highly unusual to fly a practice approach in a Cessna 172 into a Class B airport such as KSEA. Note that this flight will be VFR, without an instructor or safety pilot, and you'll need to split your time between instrument scanning and seeing and avoiding other aircraft.

Ask yourself these questions as you practice this approach:

1. When can you descend below 5000 feet?
2. To what altitude can you descend after MILLT?
3. How can you tell when it's safe to descend to the MDA of 840 feet?

Since the solo practice approach is a VOR or GPS approach, if you're adept at using the Garmin GPS 500 furnished in the default Cessna 172, you may wish to practice this approach a second time using the GPS. See my two-part series on the Garmin 500 in the April and May 2004 issues of *Computer Pilot* for tutorials on this instrument.

Real Instrument Rating Requirements: Steep Turns and Unusual Attitudes

Performing steep turns and recovery from unusual attitudes are required both for Private Pilot certification and for the instrument rating. Unfortunately, neither of these maneuvers is included in the FS2004 instrument lessons. Unlike the private pilot requirements, these maneuvers are performed "under the hood," for the instrument rating, flying with reference to instruments only. And significantly, during the unusual attitude recovery, the AI is covered to simulate its failure, which is how a pilot might actually get into an unusual attitude. Thus, the instrument rating candidate must recover from unusual attitudes with reference to the secondary or supporting instruments, quickly diagnosing the unusual attitude by noting the combined indications of these instruments.

A steep turn is defined as a turn using approximately 45° of bank. Typically, 360° turns are made to both the left and right, and the performance requirement is to maintain altitude within 100 feet, airspeed within 10 knots, within 5° of required bank angle, and rolling out within 10° of specified heading. This was one of the more difficult tasks I performed for the Private flight test, and it was even more difficult "under the hood." Yet, I flew steep turns satisfactorily by understanding the need to keep the nose from dropping during the turn, with the aid of slightly increased throttle setting and adding slight up trim, as well as subtle back pressure on the yoke. Also, just backing off the bank by the allowed 5° tolerance helped when I was starting to lose control of the turn. Because of flight dynamics and control response issues in simulators, I believe this maneuver can't be practiced very well on the computer, and it was my principle barrier to passing the FS2004 private pilot checkride.

Instrument training must also include *partial panel* flying during which the Instructor covers particular instruments to simulate failures. For example, in my aircraft an engine-driven vacuum pump failure can disable my AI and heading indicator. A blocked static pressure port can disable the airspeed indicator, altimeter, and vertical speed indicator, while a blocked Pitot tube can disable the airspeed indicator. My turn coordinator is electric, but it can fail electrically or from internal gyro failure. During a cold day with some icing, I actually experienced a blocked Pitot tube, and it was quite confusing to see my airspeed decreasing while all engine sound and other instrument and engine indications suggested I was straight and level at the desired airspeed. After prompting by my instructor to turn on the Pitot heat switch, the airspeed slowly increased to its former value.

Instructors typically teach four types of unusual attitudes: nose up and nose down, with the aircraft heading straight or turning. Here's what happens: the examiner takes the controls and asks you to close your eyes. Remember that you have already been flying with a view-limiting device. He or she covers your AI then puts the aircraft into a series of maneuvers to disorient the pilot: climbs, descents, and turns, along with possible changes to throttle, trim, flaps, etc. After opening their eyes and taking the controls, the pilot must interpret the remaining five flight main instruments to determine whether the aircraft is nose up or nose down, whether it's turning or not, then operate the controls to regain straight and level flight. Unusual attitude maneuvers are a challenge, and on my Private checkride I got a bit airsick from disorientation during these maneuvers, which further complicated my actions. Nevertheless, this is a very important part of instrument training, and recovery can often be done quite simply. The key is to determine quickly and accurately what the instruments collectively indicate about the aircraft's attitude. ✈

STATEMENT OF OWNERSHIP

1. Publication Title: Computer Pilot
2. Publication No.: 022-274
3. Filing Date: 08/10/2005
4. Frequency: Monthly
5. Number of Issues Published Annually: 12
6. Annual Subscription Price: $39.95
7. Location of Known Office of Publication: "839 Surfside Dr, Surfside Beach, SC 29575"
8. Location of Headquarters or General Office of Publisher: "839 Surfside Dr, Surfside Beach, SC 29575"
9. Names and Addresses of Publisher and Editor: Publisher: Robert Ferraro, 839 Surfside Dr, Surfside Beach, SC 29575 Editor: Dean Bielanowski, 219 Balaclava Rd., Suite 6, N. Caulfield, Vic. 3161, Australia.
10. Owner: Robert Ferraro, 839 Surfside Dr, Surfside Beach, SC 29575
11. N/A
12. N/A
13. Publication Name: Computer Pilot
14. Issue Date for Circulation Data Below: October 2005
15. Extent and Nature of Circulation: (Column 1: Average Number of Copies each issue during preceding 12 months. Column 2: Actual Number of Copies of Single Issue Published Nearest to Filing Date.)

	Column 1	Column 2
A. Total Number Copies (Press Run)	18592	19000
B. Paid Circulation		
1. Paid requested outside-county mail subscriptions	12234	11587
2. Paid in-county subscriptions	-	-
3. Sales through dealers and carriers, street vendors, and counter sales, and other non-USPS Paid distribution	4462	4220
4. Other classes mailed through the USPS	-	-
C. Total Paid and/or Requested Circulation	16696	15807
D. Free Distribution by Mail		
1. Outside-County	207	214
2. In-County	-	-
3. Other classes mailed through the USPS	-	-
E. Free Distribution Outside the Mail	-	-
F. Total Free Distribution	207	214
G. Total Distribution	16903	16021
H. Copies Not Distributed	1689	2979
I. Total	18592	1900
J. Percent Paid and/or Requested Circulation	98%	98%

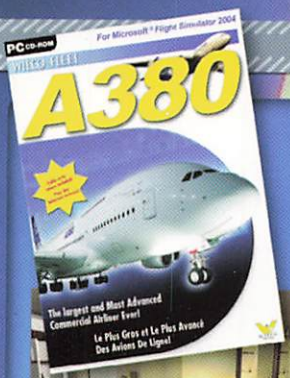
16. This Statement of Ownership will be printed in the October 2005 issue of this publication.
17. I certify that the statements made by me above are correct and complete. Robert Ferraro, Publisher, Computer Pilot

Wilco Publishing

Since 1997, publisher of quality simulation software

wilco Publishing

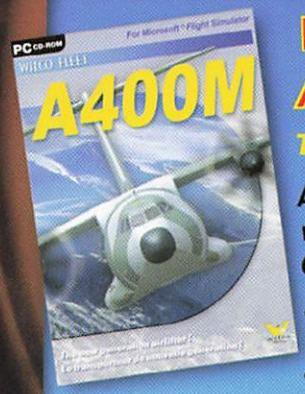
www.wilcopub.com


PC CD-ROM
For Microsoft Flight Simulator 2004
WILCO FLEET
A380
The largest and Most Advanced Commercial Airliner Ever!
Le Plus Gros et Le Plus Avancé Des Avions De Ligne!

Wilco Fleet : A380

The most ADVANCED, SPACIOUS and EFFICIENT airliner ever conceived.

- Realistic 2D and 3D interactive Virtual Cockpit
- Luxury 1st class
- Real cabin crew announcements !
- Fly-By-Wire System
- Functional FMGC
- Traffic and Collision Avoidance System
- APU management



Wilco Fleet : A400M

The New Generation Airlifter !

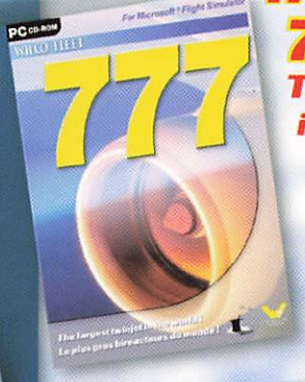
A400M offers a modern, multi-role airlifter which will replace the ageing fleets of C-130 Hercules and C-160 Transall.

- Detailed 2D and 3D interactive Virtual Cockpit
- Cargo/transporter for humanitarian/ medical operations
- Fly-By-Wire Flight Control System
- Animated 3D pilots
- New generation Airbus FMGC, SIDs and STARs included
- Traffic and Collision Avoidance System (TCAS)
- Step-by-step procedures guide

737 Pilot in Command

737 Pilot in Command will leave you SPEECHLESS !

- The classic Boeing 737-300/400/ 500 perfectly detailed
- Tested by active 737 pilots
- Autopilot : All (yes, all !) the 737 autopilot functions are simulated
- Very complex and advanced Flight Computer (FMS)
- Fully working Inertial Reference System (IRS)
- Fully simulated autoland system
- Traffic & Collision Avoidance System II (TCAS)
- Step-by-step procedures guide



Wilco Fleet : 777

The largest twinjet in the world !

- Detailed 2D and 3D interactive Virtual Cockpit
- Customized digital sound set
- Electronic Checklist
- Traffic and Collision Avoidance System (TCAS)
- APU management
- Accurate autopilot control panel

Also available :

ERJ 145 Pilot in Command

Wilco Fleet : CRJ 2004

Wilco Fleet : Caravan by feelThere.com

and more !

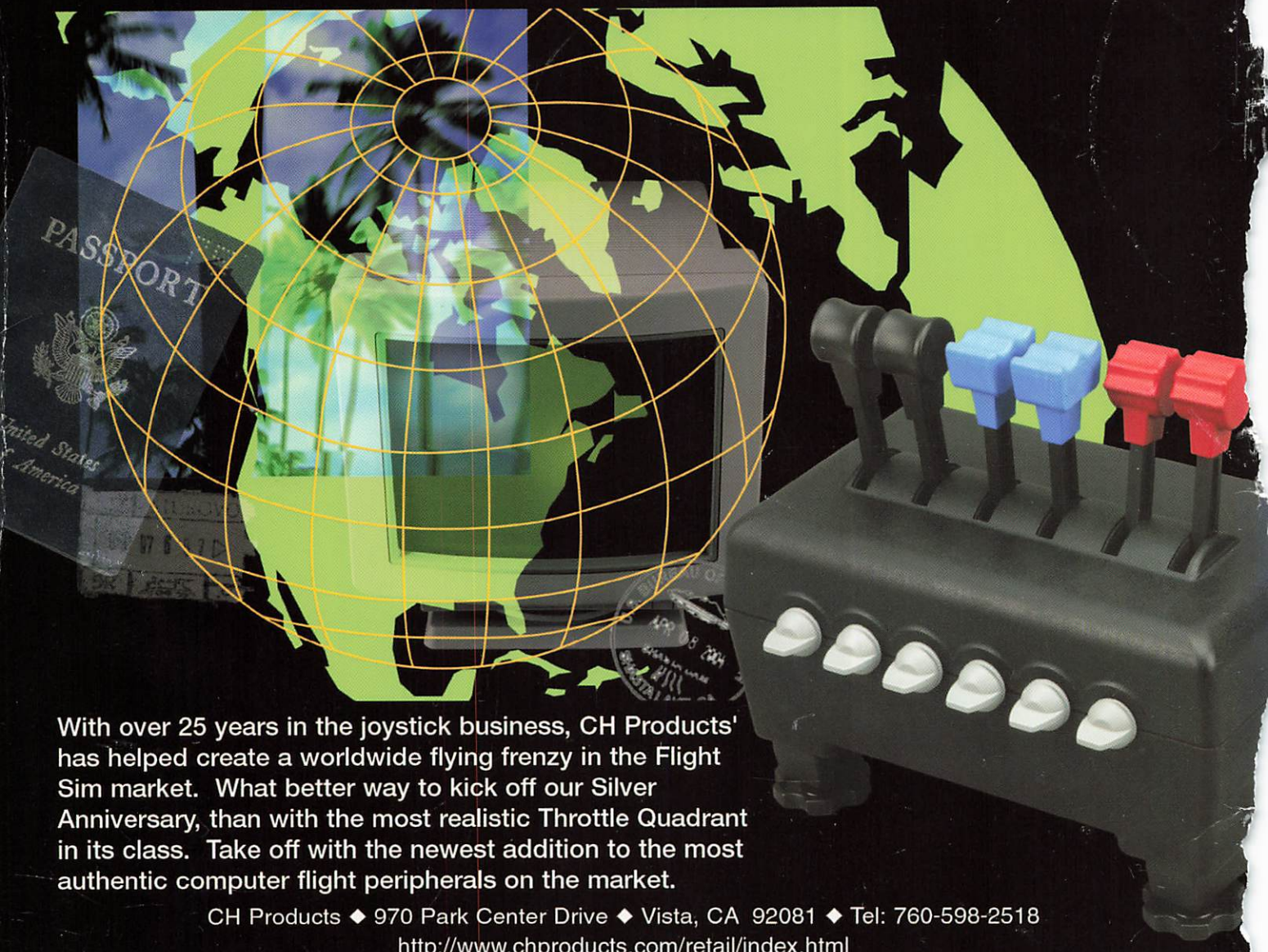
737 PIC, ERJ 145 PIC, Wilco Fleet : 777, CRJ 2004 and Caravan are developed by feelThere.com

Download and C versions available direct from Wilco Publishin or through you favourite retaile

www.wilcopub.co

CH Products

You're Cleared for Take Off!



With over 25 years in the joystick business, CH Products' has helped create a worldwide flying frenzy in the Flight Sim market. What better way to kick off our Silver Anniversary, than with the most realistic Throttle Quadrant in its class. Take off with the newest addition to the most authentic computer flight peripherals on the market.

CH Products ◆ 970 Park Center Drive ◆ Vista, CA 92081 ◆ Tel: 760-598-2518
http://www.chproducts.com/retail/index.html

"If you dream of flying, or even if you already fly, then this is your dream come true. Now everyone including YOU Can Fly!"

OCTOBER 2005

PC Aviator FLIGHT SIMULATION CATALOG

Everything for flying at your desktop…. and more!
The world's biggest range of flight simulation and aviation software – through
PC Aviator – The Flight Simulation Company!

realize your dream to fly!

FEATURED PRODUCT THIS MONTH

VoxATC Deluxe

Finally…. Voice Recognition for Talking To Microsoft Flight Simulator 2004 Air Traffic Control

VoxATC is the air traffic control environment that serious flight simulation enthusiasts have been waiting for. VoxATC is the first ATC add-on for FS2004 that has been developed with integrated voice recognition. You can now talk to the controllers using standard ATC phraseology and what you say will be heard. Requests must be properly constructed and instructions complied with and read back correctly.

VoxATC has licensed the AT&T Natural Voice set and has included two voices with the product. So you get no more robotic sounding speech from the text to speech engine.

VoxATC is not an adventure generator it runs outside FS2004 as a separate process.

The main features of VoxATC include:

- Fully integrated Voice Recognition
- Intelligent agent controllers and AI aircraft
- VFR and IFR flights
- All ATC units are included (Clearance Delivery, Ground, Tower, Departure, Approach, Center and Flight Service Stations).
- Unicom and Multicom operations handled.
- Traffic have user configurable call signs and user set levels for different airspace types.
- SIDs, STARs, waypoints and airways are referred to by name.
- Enroute Holds.
- Emergencies.

You've always wanted to speak with the Microsoft Flight Simulator 2004 controllers using your own voice – now you can with VoxATC. VoxATC is the next major step towards Flight Simulator realism

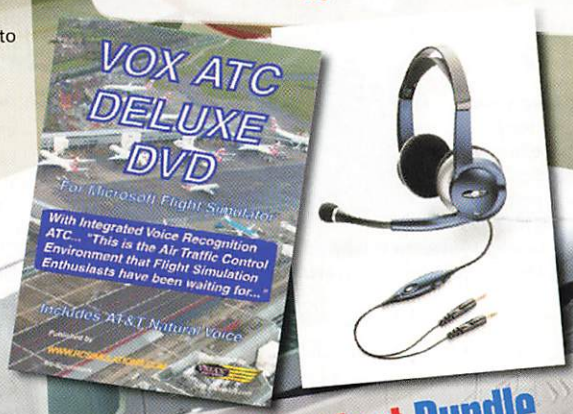
Code:	VOXATC
Title:	VoxATC Deluxe
Publisher:	RC Simulations
Media:	DVD
Price:	USD$74.95 AUD$129.95
Compatibility:	FS2004
Online ID:	531

Plantronics Audio 90 Headset

Stereo Headset With Voice Recognition Microphone

This industry leading multimedia PC headset gives you rich stereo sound along with a superior noise-canceling microphone for improved speech recognition accuracy. Includes inline volume and mute controls that can simulate a push-to-talk button.

Code:	PLNAU90
Title:	Plantronics Audio 90 Headset
Manufacturer:	Plantronics
Price:	USD$34.95 AUD$59.95
Online ID:	535


VOX ATC
DELUXE
DVD
For Microsoft Flight Simulator
With Integrated Voice Recognition
ATC... "This is the Air Traffic Control Environment that Flight Simulation Enthusiasts have been waiting for..."
Includes AT&T Natural Voice

VoxATC/Headset Bundle

This bundle gives you the perfect Microsoft Flight Simulator ATC Speech Recognition set-up all in one kit.Get the VoxATC Deluxe and the Plantronics Audio 90 Headset together in this special bundle for 99.95 and save $10 off the normal individual prices.

Code:	VOXATCBUN
Title:	VoxATC Deluxe/Plantronics Audio 90 Headset Combo
Price:	USD$99.95 AUD$179.95
Online ID:	536

Order Online 24/7 @ www.pcaviator.com

PC Aviator
The Flight Simulation Company!

"Welcome To PC Aviator Direct!"

Welcome To PC Aviator - The Flight Simulation Company! The company you've always dreamed about as your one stop "go-to" supplier for all your flight simulator and aviation software needs! Welcome, also, to The PC Aviator Flight Simulation Catalog - the catalog that every flight simulator enthusiast should be using to purchase their flight simulation products.

We've serviced tens of thousands of flight simulator enthusiasts worldwide since 1990 (over 15 years!). We're here to stay and we just keep getting better and better.

When you do business with PC Aviator, you're not dealing with just another "box mover"! Instead, you're dealing with an industry leading company that exists to help make every flight simulator enthusiast that comes into contact with us enjoy the richest flight simulation experience they could ever imagine. That includes you! How do we accomplish this and at the same time prove our commitment? Well just look at what we do.... As well as PC Aviator Direct, the catalog you are now reading, we are the publisher of Computer Pilot Magazine and we also publish some of the best flight simulation software around e.g. MegaScenery. (With this in mind... look for titles carrying the PC Aviator label!)

We want you, just like tens of thousands of other flight simulator enthusiasts, to be touched by that special PC Aviator magic that keeps customers coming back to us to service them time and time again.

With our commitment to helping you to "realize your dream to fly", and which shows in all that we do, most of the profit from your purchases goes directly back into the company to be used to make PC Aviator even better for you the next time around. So when you do business with PC Aviator, you're investing in the future of your enjoyment!

Our regular customers already know (and will agree with this) and that is that what you'll find most striking about PC Aviator is that we're "real" friendly people.

Prepare for the fun and enjoyment that you're about to have!

Regards

Robert Ferraro
Founder and President

The PC Aviator Benefits

Here's what you get to enjoy as a PC Aviator Direct customer:

- You're Dealing With Flight Simulator Experts!
- Same Day Dispatch And Low Cost, Rapid 1 to 4 day Delivery - From just $3.95!
- Many Ways To Order, Many Ways To Pay!
- Carefully Selected Product Range - If We Won't Fly It, We Won't Sell It!
- 30 Money Back Guarantee On All Hardware Items!
- 5% Discount for Computer Pilot Subscribers Off ALL List Prices
- You're Dealing With The Most Experienced Value Added Reseller of Flight Simulation Products In The World! Since 1990!
- We're Real Friendly People!
- The Best Service In The World, Amazingly, Gets Even Better The Next Time Around!

You don't get these benefits from stores and box movers. Why would you want to purchase your flight sim products from anywhere else but PC Aviator?

Two Offices Worldwide

PC Aviator operates two international offices. One in the USA and one in Australia. Through our two offices, we are able to service flight simulators around the entire globe. So you're never too far away to purchase and enjoy the flight simulation products in our catalog. See column to the right for information about which office to order from. Our office addresses and contact details are as follows.

USA Office

PC Aviator Inc
839 Surfside Drive
Surfside Beach, SC, 29575
General Phone: 843-232-1160
Fax: 843-232-1166
Toll Free Order Line: 1-800-664-0033
Intl Phone: +1-843-232-1160
Intl Fax: +1-843-232-1166
E-Mail: info@pcaviator.com
World Wide Web: www.pcaviator.com

Australian Office

PC Aviator Pty Ltd
219 Balaclava Rd, Suite 6
North Caulfield, Vic, 3161
General Phone: 03-9532-8258
Fax: 03-9532-8916
Toll Free Order Line: 1-800-807-747
Intl Phone: +61-3-9532-8258
Intl Fax: +61-3-9532-8916
E-Mail: info@pcaviator.com.au
World Wide Web: www.pcaviator.com.au

Shopping With This Catalog And Our Website

Thanks to the richness of information that we are able to provide through our website on the world wide web, at www.pcaviator.com we're able to provide you with a shopping experience that combines a printed catalog with an online catalog.

This catalog provides basic information on each product. To find much more comprehensive information on each product including a myriad of screenshots, textual information and general requirements use the **Online ID number** or item code underneath each product in the catalog to locate that product on our online product database and browse much more comprehensive information.

To work out which office services you (if you're outside the USA or Australia), simply select your country from the pull down menu at the website and it will tell you wish office services your country and the appropriate currency. $USD or $AUD.

General speaking however, the Asian and Pacific region is serviced by Australia and the rest of the world our US office.

Prices in this catalog.

We list prices in $USD and $AUD. The Australian dollar amount approximately reflects the current exchange rate. The Australian dollar prices include 10% Australian GST. If you are ordering from Pacific countries outside of Australia, you can deduct 10% which is the GST portion of the price.

For more information on shopping with PC Aviator including all of our policies and additional shopping help - simply select the HELP option at the website.

Our website address for the entire world is
www.pcaviator.com

"Computer Pilot Subscribers Enjoy A 5% Discount Off All Purchases at PC Aviator!"

An exclusive benefit for Computer Pilot subscribers is a 5% discount off all orders at PC Aviator. If you're not currently a subscriber to Computer Pilot then please consider a subscription. Every purchase you make through this catalog or online at PC Aviator Direct will enable you to enjoy this saving that will offset the price of your subscription anyway.

To take advantage of your 5% discount online, simply click on the discount card on the home page at www.pcaviator.com to activate your 5% discount..

Some Inspiration...

Stop and think for just a moment....

So...just what is it that makes flight simulation so captivating?

The answer is simple...

Almost every person alive is fascinated with the concept of flight. Wouldn't you agree that every time you heard the drone of a trusty Cessna in the sky, you looked up to find the source of the sound.

It might have been a fleeting glance or your gaze may have been fixated until the aircraft disappeared into the horizon.

It would be safe to say that the longer you watched that aircraft in the sky, the greater was your fantasy to be the pilot flying it.

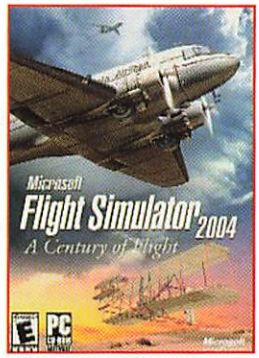
Almost everyone has, at some stage had that fantasy ...that dream to fly their own aircraft.

And that is what makes computer flight simulation so enthralling... so captivating ...so satisfying! It lets every one who has ever had that fantasy....everyone who has ever wanted to...Realize their dream to fly...

..Realize Your Dream To Fly!

Microsoft Flight Simulator 2004

A Century Of Flight



This is THE base simulator that the products in this catalog, our company and most of what is considered the flight simulation industry is based around. It's Microsoft's Flight Simulator 2004!!

Microsoft Flight Simulator 2004 is a very powerful and feature rich simulator for your PC that does all you could ask for in a flight simulator and is achievable by today's PC technology.

It's by far the biggest selling flight simulation product of all time and is one of the biggest selling PC entertainment and edutainment products of all time. It used by an estimated 1 million plus desktop pilots, actual pilots, wanna-be pilots. Why? Because as Microsoft Says... "It's as Real As It Gets!".

Microsoft Flight Simulator can be used if you are an actual pilot or trainee pilot who wants to keep their eye in and learn ab-initio. You can do virtually everything you can do in the real world in Flight Simulator - from start up, to taxiing, to flying, to navigating, to flying instrument approaches, landing.... EVERYTHING - even interacting with Air Traffic Controllers!

You can fly the aircraft of your dreams, from Cessna to Jumbo jet. In fair weather or severe weather which is so realistically replicated. Aircraft fly like their real life counterparts, cockpits look the same, instruments and gauges all work, even engine sounds and control down to mixture, EGT and more are all controllable.

The base product (for just $34.95), comes with over 20 aircraft, virtually every airport in the world along with a worldwide navaid database. Want to fly the airspace around New York, Alaska, Mt Everest, across the Sahara Desert? You can fly anywhere on the entire globe!

And while the base product gives you so, so much... you can enhance it and upgrade it to your heart's content with all of the add-ons and expansions in this catalog. Add aircraft, from light singles to heavy jets, add scenery that's so real you can identify your own house from the virtual skies, add traffic that recreates real world traffic in the skies around you, add airports that FULLY recreate the detail of major international airports... even enhance the default ATC with voice recognition where the controllers listen to and understand you - through your PC headset.

If you love aviation, love to fly, dream of flying.... Well now with Microsoft Flight Simulator you can live your dream of flying.

If you don't yet own Microsoft Flight Simulator 2004, this is your opportunity to own it and if you do, this catalog is your opportunity to enhance it and even further improve your desktop flying experience!

Fly anything from a Cessna 172 to a Learjet 45 to a 747-400 airliner.

Code:	FS2004
Title:	Microsoft Flight Simulator 2004
Publisher:	Microsoft Corporation
Price:	USD$34.95, AUD$89.95

Online ID: 47

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator

The Flight Simulation Company!

US Airports 1

Four Mega U.S. Airports For Your Microsoft Flight Simulator

From the renowned quality airport development team, FlyTampa, comes 4 highly detailed true-to-life recreations of 4 major US airports:

- San Francisco International (KSFO)
- Miami International (KMIA)
- San Diego Lindenbergh International (KSAN)
- Tampa International (KTPA)

These airports are truly reflective of their real life counterparts and, as well as the buildings, also offer static and dynamic objects such as trucks, cars, and shuttles.

If you frequently use these airports in Microsoft Flight Simulator 2004, then you need to add this collection to your simulator scenery. These airports are also compatible and lay right over the top of photo-scenery products that cover those same areas.

Includes 40 pages of instrument approach charts and detailed airport diagrams.

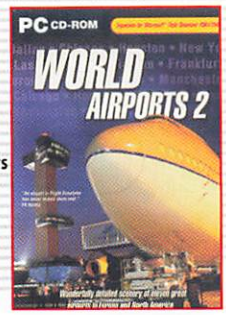
San Francisco International Airport – about as close as you can get to experience the real life KSFO.

Code:	USAIRP
Title:	US Airports 1
Media:	CD-ROM
Publisher:	Aerosoft Germany
Developer:	FlyTampa
Price:	USD$39.95. AUD$64.95
Compatibility:	FS 2004, FS 2002

Online ID: 462

World Airports 2

Eleven Detailed European & North American Airports



The SimFlyers team are rightfully acknowledged as experts when it comes to airport scenery. Here are eleven of their best!

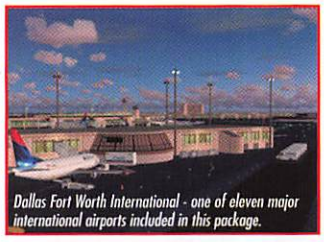
- New York JFK • Chicago O'Hare • Washington Dulles
- Houston Intercontinental • Las Vegas International
- Dallas Fort Worth • Toronto International • Frankfurt
- Rome • Manchester London Luton

These real life airport replicas teem with life thanks to a huge fleet of dynamic ground vehicles. Active jetways at many of the gates will dock against your aircraft. And you can watch all of the ground action with the unique "follow-me" car.

These airports are also compatible and lay right over the top of photo-scenery products that cover those same areas.

BEST SELLER!

Includes 40 page manual.

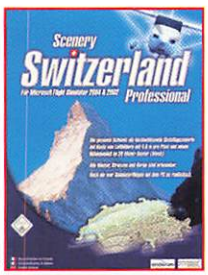

Dallas Fort Worth International - one of eleven major international airports included in this package.

Code:	WAP2
Title:	World Airports 2
Media:	CD-ROM
Publisher:	JustFlight
Developer:	SimFlyers
Price:	USD$44.95. AUD$74.95
Compatibility:	FS 2004, FS 2002

Online ID: 251

Scenery Switzerland Professional

Breathtaking Swiss Alpine Photo-Scenery



Fly the entire country of Switzerland and experience some the breathtaking mountain flying over the Swiss Alps with Microsoft Flight Simulator 2004 & 2002.

This scenery is recreated from aerial photography of the Swiss region giving you a completely photo-real mountain flying experience over and around glaciers and jagged snowcapped peaks.

The landlocked country of Switzerland is 16,000 square miles in area. You get to fly the entire country along with its visually spectacular alpine terrain.

- Recreated from aerial photography • 20 meter resolution terrain mesh • 4 highly detailed custom design small airfields, plus all of the default flight simulator airports
- Experience flight amongst jagged snow capped peaks and rich green mountainside pastures. *This is flight over Switzerland as it would be in real life!*

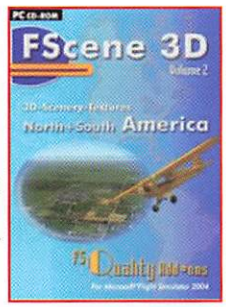
Never before have you experienced such realistic flight over the Swiss alps!

Code:	SWISSPRO
Title:	Scenery Switzerland Professional
Media:	CD-ROM
Publisher:	FlyLogic Software
Developer:	FlyTampa
Price:	USD129.95. AUD179.95
Compatibility:	FS 2004, FS 2002

Online ID: 354

FScene 3D

All-Season 3D Scenery Textures For Microsoft Flight Simulator

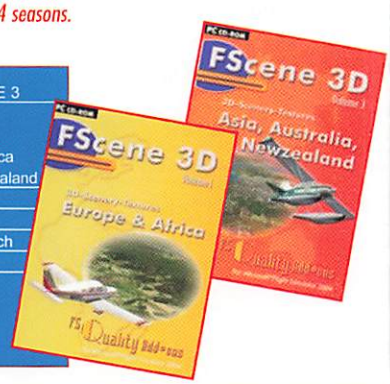


FScene 3D is replaces thousands of landclass ground-textures with new texture files that are specially designed to match the characteristics of the landscape on the different continents much better than the default ones do.

The North American continent, for example, looks more North American, in all 4 seasons – Spring, Summer, Winter and Fall.

A special drawing technique applied to the textures gives them almost the impression of being three-dimensional. Whether you fly over urban jungles, meadows in spring, the Carribean islands, or South American rainforest, FScene 3D will visually enhance every flight you make.

3 Titles cover all 7 continents and includes all 4 seasons.



Codes:	FSCENE1, FSCENE2 or FSCENE 3
Titles:	FSCene 3D - Volume 1: Europe and Africa, Volume 2: North and South America Volume 3: Australia, Asia, New Zealand
Media:	CD-ROM
Publisher:	FSQuality Addons
Prices:	USD$44.95 each. AUD$69.95 each
Compatibility:	FS 2004, FS 2002

Online IDs: Volume 1 - 514, Volume 2 - 515 Volume 3: 516.

MegaScenery

Hyper-realistic Photo-Scenery For Microsoft Flight Simulator

Say goodbye to boring default scenery forever! MegaScenery and MegaCITY transform your Microsoft Flight Simulator Scenery World from artificial... to REAL! MegaScenery is created from satellite images and aerial photos. What you get is not a recreation of the real world but instead the actual real world ported into Microsoft Flight Simulator 2004 for simulated flight over a world that's so real you'll be amazed!

MegaScenery and MegaCITY lets you experience all the landmarks and features of the area covered and enables you to fly real VFR - Day and Night.

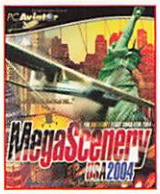
Here's what you get when you're flying MegaScenery....

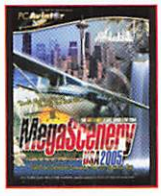
- Hyper-realistic satellite scenery at 5 meters per pixel (MegaScenery titles) and aerial photos recreated from 1 and 2 feet per pixel (MegaCITY titles).

It's the real world teleported into Flight Simulator Scenery. 5 meters per pixel means that you can even see the rooftop on your own house. Fly VFR like you've never flown it before on a PC simulator.

- Day and Night Scenery.
  Soar and explore the real world - during the day and at night!
- Winter Scenery too!
  In selected areas, where required by geographical location, you also get realistically rendered snow covered scenery. e.g. MegaScenery New York. So you're getting up to 3 sceneries in the one package.
- Improved Autogen.
  We replace default FS2004 autogen scenery with our "more-correct" version.
- Hi-resolution DEM (mesh).
  While MegaScenery is so realistic that you don't need hi-res mesh - our recent releases incorporate hi-res mesh at 30 meters.
- The list goes on... You also get realistic water.
  Our hand etched coastlines and shores mean that bodies of water such as lakes maintain their "water properties". So you can land your float planes on them
- Relocation of default FS2004 objects to correct location.
  That's right MegaScenery, upon installation, will relocate default FS2004 objects to their absolute correct geographic co-ordinates.
- Faster Framerates!
  Yes, your Flight Simulator, with hyper-realistic MegaScenery, will run smoother and faster than the default artificial scenery.
- Developed specifically for Microsoft Flight Simulator 2004.
- Printed full color aeronautical charts,
  bound printed instrument charts and a sizeable manual with professional flight lessons. (Full Kit Versions)
- A total value packed, realism transforming scenery product
  For Microsoft Flight Simulator that you wouldn't think was possible for such a low price!

Before and after screenshots of Glacier Peak Washington, show what you are experiencing now and what you'll experience with MegaScenery!





Comprehensive information on all these titles including online ordering is available at www.megascenery.com

- MegaScenery Volume 1: Southern California
  14,000 square miles of SoCal including Los Angeles and San Diego.
- MegaScenery Volume 2: New York
  22,000 square miles of New York, Long Island, NJ and CT
- MegaScenery Volume 3: Northern California
  22,000 square miles of Northern California including San Francisco and Sacramento
- MegaScenery Volume 4: Pacific Northwest
  30,000 square miles of Pacific Northwest including Seattle in aerial photo detail.
- MegaScenery Volume 5: Mid Atlantic (AVAILABLE OCTOBER 2005)
  20,000 square miles of Mid Atlantic Including Washington DC and Baltimore in aerial photo detail.
- MegaCITY San Francisco
  3000 sq miles of San Francisco Bay recreated from 2 foot per pixel aerial photos
- MegaCITY Denver
  3600 square miles of Denver and surrounding area recreated from 1 foot per pixel aerial photos
- MegaCITY Dallas/Fort Worth
  4600 square miles of Dallas/Fort Worth and surrounding area recreated from 2 foot per pixel aerial photos

Code:	MS-LAX-CDL
Title:	MegaScenery Vol 1: Southern California (Lite)
Media:	DVD-ROM
Price:	USD$29.95, AUD$49.95

Code:	MS-NY-CDF
Title:	MegaScenery Vol 2: New York (Full)
Media:	CD-ROM
Price:	USD$39.95, AUD$59.95

Code:	MS-SFO-CDL
Title:	MegaScenery Vol 3: Northern California (Lite)
Media:	CD-ROM
Price:	USD$29.95, AUD$49.95

Code:	MS-SFO-CDF
Title:	MegaScenery Vol 3: Northern California (Full)
Media:	CD-ROM
Price:	USD$39.95, AUD$59.95

Code:	MS-PNW-DVL
Title:	MegaScenery Vol 4: Pacific Northwest (Lite)
Media:	DVD-ROM
Price:	USD$29.95, AUD$49.95

Code:	MS-PNW-DVF
Title:	MegaScenery Vol 4: Pacific Northwest (Full)
Media:	DVD-ROM
Price:	USD$39.95, AUD$59.95

Code:	MS-VOL5-DVL
Title:	MegaScenery Vol 5: Mid Atlantic (Lite)
Media:	CD-ROM
Price:	USD$29.95, AUD$49.95

Code:	MS-VOL5-DVF
Title:	MegaScenery Vol 5: Mid Atlantic (Full)
Media:	CD-ROM
Price:	USD$39.95, AUD$59.95

Code:	MCTY-SFO
Title:	MegaCity San Francisco
Media:	CD-ROM
Price:	USD$24.95, AUD$34.95

Code:	MCTY-DEN
Title:	MegaCity Denver
Media:	CD-ROM
Price:	USD$19.95, AUD$29.95

Code:	MCTY-DFW
Title:	MegaCity Dallas Fort Worth
Media:	CD-ROM
Price:	USD$24.95, AUD$34.95

Note: All products are FS 2004 compatible

Publisher: PC Aviator Inc

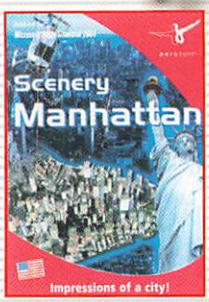
Developer: Aerosoft Australia

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator
The Flight Simulation Company!

Scenery Manhattan



Downtown Manhattan Recreated In A Level Of Detail That's Unsurpassed!

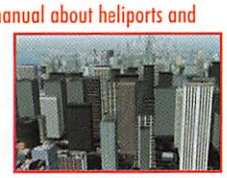
Never before has a city been recreated in so much detail in a Flight Simulator scenery.

You'll be cruising actual downtown Manhattan, and you'll be zipping along the rivers, avoiding traffic and trying to stay on the published routes. You will be landing on heliports that define the word detail.

You'll be flying your light aircraft over the published routes or you will be guiding your 737 in one of the worlds most spectacular VFR approaches, the JFK River Visual to RWY 13. Take your friends up for a visit to the Statue of Liberty.

- Manhattan (East Side, West Side, Uptown and Downtown), Ellis Island, Governer's Island, Liberty Island, Roosevelt Island, Sections of New Jersey Hudson River and Long Island East River edge.
- All major bridges and all famous landmarks in Manhattan
- Seasonal textures
- Awesome night effects
- Repaints of Bell 206 helicopter
- Detailed manual about heliports and routes

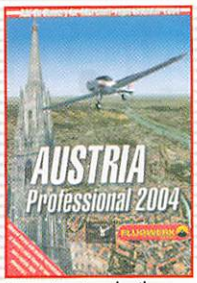
BEST SELLER!



Code:	SCMANH
Title:	Scenery Manhattan
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$29.95, AUD$49.95
Compatibility:	FS 2004

Online ID: 244

Austria Professional 2004

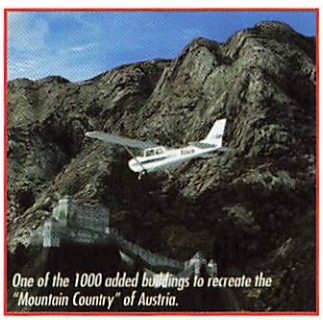


Fly The "Mountain Country" of Austria

Austria with its amazing topography and landscapes is the ideal scenery for a flight with Flight Simulator. From the Danube to the Drau, from Lake Constance to Lake Neusiedler, this scenery will give you the best in visual flying.

Follow steep mountain crests and the green valleys. Navigate by lakes, rivers, streets and rail tracks as well as landmarks such as castles, churches, masts and power plants. An additional detailed terrain model with all four seasons will allow a real visual flying experience according to road maps.

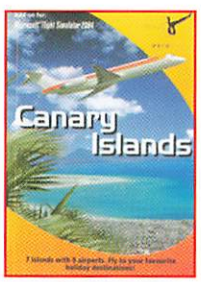
Capital City Vienna is recreated from aerial photos and includes 1000 added buildings and 50 historic landmarks.


One of the 1000 added buildings to recreate the "Mountain Country" of Austria.

Code:	AP2004
Title:	Austria Professional 2004
Media:	CD-ROM
Publisher:	Aerosoft Germany
Developer:	Flugwerx
Price:	USD$49.95, AUD$79.95
Compatibility:	FS 2004, FS 2002

Online ID: 467

Canary Islands



7 Islands With 9 Airports. Fly to your Favorite Holiday Destinations!

Enjoy this highly detailed scenery of the Canary Islands. Nine realistically recreated airports provide an impressive simulation of these holiday destinations.

The elevation model, realistic coastlines and roads create a truly marvelous and realistic atmosphere in beautiful surroundings.

This add-on is AI traffic compatible and includes extra large printed Jeppesen Charts.

Includes:

- El Hierro
- Gran Canaria
- Gran Canaria "El Berriel"
- Fuerteventura
- La Gomera
- Lanzarote • La Palma • Tenerife North • Tenerife South

Tenerife North (Los Rodeos)

Code:	CANIL2004
Title:	Canary Islands
Media:	CD-ROM
Publisher:	Aerosoft Germany
Developer:	Sim Wings
Price:	USD$39.95, AUD$69.95
Compatibility:	FS 2004, FS 2002

Online ID: 510

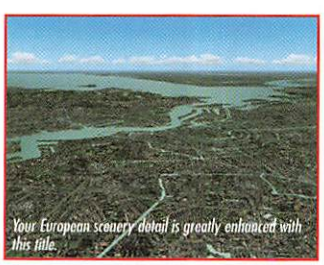
All Roads Of Europe

Adds The Complete European Road Infrastructure To FS2004

This package enhances the default rendering of natural and man-made geographical features for Europe in FS2004.

VFR-flying in Microsoft's Flight Simulator by using a simple road-atlas? Now it is finally possible. "All roads of Europe" adds complete European road networks to your Flight Simulator.

Not only does it add road networks for Europe, it does much more! It also adds all lakes, and even corrects the major streams and rivers so that they can be used for orientation. The designer even reworked all coastlines of the continent! And for all those enhancements data provided by NAVTEQ (these are the same you will find in the best Car-GPS-Systems) means that the scenery additions are as accurate as possible. This means, everything is now really in place and a flight along a coast becomes a totally new experience.


Your European scenery detail is greatly enhanced with this title.

Code:	EURRDS
Title:	All Roads Of Europe
Media:	CD-ROM
Publisher:	FS Quality Add Ons
Price:	USD$39.95 AUD$69.95
Compatibility:	FS 2004

Online ID: 510

German Airports 1, 3 & 4

Highly Detailed Airports of Germany!

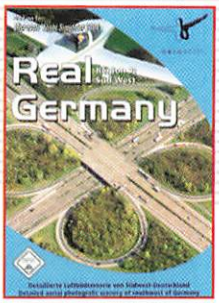
These titles give you highly detailed authentic recreations of these airports in Germany. Great to add-on to Real Germany series (see right) for as real a Germany as you can get by today's standards. Come complete with Jeppesen charts and airport diagrams.

- **German Airports 1 -** Munich, (Franz-Josef Strauß Airport), Nuremberg, Dresden, Bayreuth, Egelsbach (Europe's busiest GA-airport), Augsburg, Stuttgart Friedrichshafen (Lake Bodensee), Altenrhein (Switzerland) Innsbruck (Austria).
- **German Airports 3 -** Hamburg, Duesseldorf, Moenchengladbach (Duesseldorf-Express-Airport), Bremen, Berlin-Tegel, Kiel, Luebeck.
- **German Airports 4 -** Berlin-Tempelhof, Berlin-Schönefeld, Saarbrücken, Hahn, Magdeburg, Schwerin-Parchim Braunschweig, Westerland/Sylt, Baden-Airport (Baden-Baden), Maastricht-Aachen

Codes:	GA12004, GA32004 or GA42004
Titles:	German Airports 1, 3 or 4
Publisher:	Aerosoft Germany
Prices:	USD$44.95 each. AUD$69.95 each
Compatibility:	FS 2004, FS 2002

Online IDs: GA1 - 141, GA3 - 429, GA4 - 160

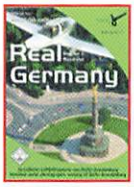
Real Germany 1, 2 & 3



Detailed Aerial Photographic Scenery For Entire Germany

Recreated from 0.5 meter per pixel aerial photography the entire country of Germany is recreated for spectacular visual flight within Microsoft Flight Simulator.

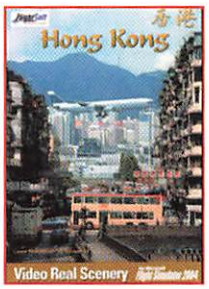
3 titles cover West, Northeast & Bavaria cover every square foot of the entire country. Experience real VFR flight over the German alps, the lush German countryside and busy cities.



Codes:	RGER1, RGER2 or RGER3
Titles:	Real Germany 1: West, Real Germany 2: North, Real Germany 3: Bavaria
Publisher:	Aerosoft Germany
Prices:	USD$34.95 each. AUD$59.95 each
Compatibility:	FS 2004, FS 2002

Online IDs: RGER1 - 206, RGER2 - 524, RGER3 - 464,

Hong Kong 2004

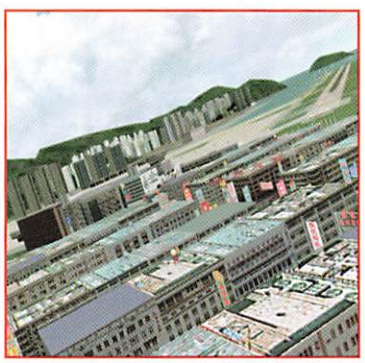


Conquer The Most Challenging Approach In Commercial Aviation!

Hong Kong Kai Tak's Runway 13 checkerboard approach is the most notorious and challenging approach in commercial aviation. Kai Tak is now closed but Hong Kong 2004 lets you continue to experience that famous approach - and all of Hong Kong on your PC.

You get to experience one of the world's busiest metropolises in hyper realistic detail. 67 sightseeing flights let you experience this exotic land.

Also includes authentic Hong Kong ATC audio chatter.

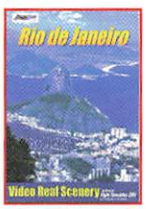


Code:	HK2004
Title:	Hong Kong 2004
Media:	CD-ROM
Publisher:	Flightsoft
Price:	USD$39.95. AUD$64.95
Compatibility:	FS 2004, FS 2002

Online ID: 169

Rio De Janeiro

Now Fly Rio!

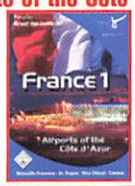


Code:	RIO
Price:	USD$39.95. AUD$64.95

Online ID: 409

France 1

Airports of the Cote d'Azur



Code:	FR1
Price:	USD$34.95. AUD$59.95

Online ID: 509

New Spanish Airports

9 Major airports

Code:	SPA2
Price:	USD$39.95. AUD$64.95

Online ID: 468

Holiday Resorts

Honolulu, Hurgada, Male, Punta Cana

Code:	HOLRES
Price:	USD$34.95. AUD$59.95

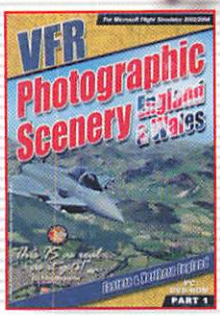
Online ID: 420

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator
The Flight Simulation Company!

VFR Photographic Scenery England & Wales

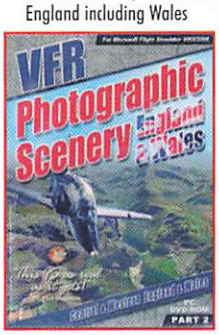


Stunning photo-scenery for the entire UK

VFR Photographic Scenery England & Wales is recreated from hi-resolution aerial photographs and gives you a stunningly real recreation of all of England and Wales in this 2 volume set.

Photographic scenery enables true VFR flying over a real world recreation. You'll be able to identify and navigate by actual landmarks that you'll experience in real life itself.

Volume 1 Gives you Eastern and Northern England. Volume 2 Gives you Central and Western England including Wales



Code:	VFREW1, VFREW2
Title:	VFR Photographic Scenery England And Wales - Volume 1, Volume 2
Media:	CD-ROM
Publisher:	Horizon Simulation Ltd
Developer:	VisualFlight
Price:	USD$34.95. AUD$59.95
Compatibility:	FS 2004, FS 2002

Online ID (Vol 1): 68
Online ID (Vol 2): 69

Scenery Germany 1, 2 & 3

VFR Scenery For All Of Germany

These 3 sceneries give you a combination of detailed 3D scenery, detailed airports and other enhancements that enhance the entire German country for cross country flying.

Add important landmarks, heliports and other features.

All packs include charts.

Code:	SCGER1, SCGER2, SCGER3
Title:	Scenery Germany 1 Scenery Germany 2 Scenery Germany 3
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price (each):	USD$39.95. AUD$69.95
Compatibility:	FS 2004

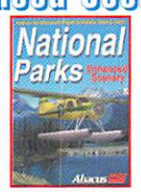
Online ID (Vol 1): 161
Online ID (Vol 2): 432
Online ID (Vol 3): 527

Scenery Baleric Islands & Gibraltar

Code:	BALGIB
Price:	USD$39.95. AUD$59.95

Online ID: 431

National Parks Enhanced Scenery



Code:	NATPARK
Price:	USD$29.95. AUD$49.95

Online ID: 171

Georender Scenery Collection

Code:	GEOR
Price:	USD$39.95. AUD$59.95

Online ID: 431

Wonderful Madeira

Code:	WMAD
Price:	USD$29.95. AUD$49.95

Online ID: 353

Scandanavian Airports 1 & 2

Highly detailed airports in Scandanavia

Volume 1 gives you 9 highly detailed airports in Denmark, Sweden, Finland & Norway.

- Oslo
- Kopenhagen-Kastrup
- Aarhus
- Göteborg
- Malmö
- Bornholm
- Jönköping
- Kiruna

Volume 2 Gives you an additional 8

- Stockholm Arlanda
- Stockholm Bromma
- Helsinki Vantaa
- Helsinki Malmi
- Bergen Flesland
- Kristiansand Kjevik
- Billund
- Sindal

Code:	SCAND12004, SCAND22004
Title:	Scandanavian Airports 1 Scandanavian Airports 2
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price (each):	USD$39.95. AUD$69.95
Compatibility:	FS 2004, FS 2002

Online ID (Vol 1): 425
Online ID (Vol 2): 426

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

FS Global 2005

Worlwide Terrain Mesh Upgrade Gives You Up To 16 Times More Detail

While default Microsoft Flight Simulator 2004 terrain mesh (elevation data) is 1.2 Km per data point, FS Global 2005 gives you 76 meters per data point resulting in much more definition and 3 Dimensionality to your scenery.

This upgrade enhances the entire planet so no matter where you are flying you get to enjoy the enhanced detail of mountainous terrain and valleys.

Flight over mountainous terrain becomes truly spectacular as you see mountain detail that you wouldn't with default scenery.

This 14 Gigabyte title comes on 3 DVDs.

BEST SELLER!

The Matterhorn in the European Alps shows much more detail than in default scenery.

Code:	FSG2005
Title:	FS Global 2005
Media:	CD-ROM
Publisher:	Profisoft
Developer:	Pilot's
Price:	USD$49.95. AUD$89.95
Compatibility:	FS 2004, FS 2002

Online ID: 447

RealScene 2004

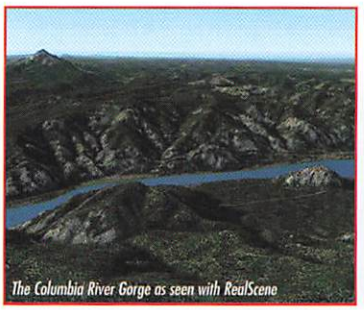
30 Meter Terrain Mesh Scenery and Improved Landclass Textures For The Entire USA.

RealScene 2004 includes over 3GB of 30-meter terrain source data covering the entire United States, including Alaska, Hawaii, Puerto Rico, and the Virgin Islands.

Also includes updated landclass data (scenery textures) for the entire continental United States. By using higher resolution and more accurate landclass data in RealScene 2004, the detail of terrain dramatically improves.

Placement of forest, fields, cities, and towns will look much more accurate and more truly represent the actual terrain over the continental USA. This data will also result in much more accurate night lighting of towns and cites since the location of this data is much more accurately represented.

BEST SELLER!


The Columbia River Gorge as seen with RealScene

Code:	RSTMS2004
Title:	RealScene 2004
Media:	DVD
Publisher:	VMAX
Price:	USD$39.95. AUD$64.95
Compatibility:	FS 2004, FS 2002

Online ID: 153

World Extreme Landscapes

NEW

76 Meter Terrain Mesh Upgrade For The Entire Planet

Normally, Flight Simulator elevation info for the world is accurate to about 1220 meters. World Extreme Landscapes boosts the resolution to 38.2 and 76.4 meters depending on the geographic area.

Much more detail is revealed when the elevation data points are closer together instead of 1220 meters apart. The resulting landscape is modeled even closer to reality and brings you an incredible visual flight.

World Extreme Landscapes boosts the visual accuracy of Flight Simulator by adding millions of points to Flight Simulator's elevation data. For this huge amount of information, it is delivered on a set of 3 DVDs.

Cliffs that would not otherwise appear on this coastal inlet are clearly visible.

Code:	WEXTRLND
Title:	World Extreme Landscapes
Media:	DVD
Publisher:	Abacus
Developer:	FSGenesis
Price:	USD$29.95. AUD$54.95
Compatibility:	FS 2004, FS 2002

Online ID: 521

VFR Terrain: England & Wales

Hi-Resolution Terrain Mesh For England And Wales

This terrain mesh upgrade for England and Wales offers a lot of additional detail beyond just a terrain mesh for the UK. 38 meters (19 meters in FS2002) resolution.

Code:	VFRTERUK
Price:	USD$34.95. AUD$49.95

Online ID: 444

FSTerrain 2004

76 Meter Terrain Mesh For Europe and USA

Code:	FSTER
Price:	USD$29.95. AUD$49.95

Online ID: 217

Asia Mesh 2004

76 Meter Terrain Mesh For Asia

Code:	ASMESH
Price:	USD$29.95. AUD$34.95

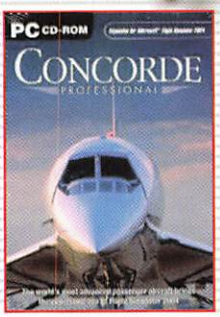
Online ID: 437

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator
The Flight Simulation Company!

Concorde Professional

Supersonic Jet Transportation - Faster Than A Bullet!



The era of supersonic transportation begins and ends with Concorde! After 28 years of commercial operation Concorde has had to take early retirement but this aviation icon will continue to dart across the skies of Flight Simulator 2004 at 23 miles-a-minute.

The accuracy of this virtual Concorde is unmatched and it will take every ounce of your skill and dedication to master. Piloting Concorde Professional is the most challenging flying experience you'll ever have on your PC - this is a fact, not a slogan!

- Fully animated parts
- Accurate flight model with re-heat effect
- Four British Airways and Air France liveries
- Concorde INS (Inertial Navigation System)
- Fully detailed virtual cockpit
- High resolution gauges
- Engineers panel
- Reflective glass on gauges

Air France Concorde. Fly her at supersonic speeds!

Code:	CONCRDPRO
Title:	Concorde Professional
Media:	CD-ROM
Publisher:	JustFlight
Developer:	Phoenix Simulations
Price:	USD$44.95. AUD$74.95
Compatibility:	FS 2004

Online ID: 483

A340 Professional

Fly Europe's Most Advanced Airliners - A330 and A340

The Airbus A340 and A330 are spearheading Europe's domination of the airline market and now these two high-tech heroes are brought to life. The A330 and A340 are painstakingly reproduced for FS2004 (and FS2002) to a high level of detail with accurate animations of the flight surfaces, engines, undercarriage, and passenger and cargo doors.

- Fully animated everything!
- 8 different models - A330-200, A330-300, A340-200, A340-300
- Variants equipped with CFM, GE, Rolls Royce and Pratt and Whitney Engines
- 42 airline liveries
- Highly Detailed 2D and 3D cockpit with working windscreen wipers
- Full complement of moving parts
- Reflection mapped hi-res textures
- Wing tip vortices
- Payload editor utility

Fly High With Qantas!

Code:	A340PRO
Title:	A340 Professional
Media:	CD-ROM
Publisher:	JustFlight
Developer:	Phoenix Simulations
Price:	USD$44.95. AUD$74.95
Compatibility:	FS 2004, FS 2002

Online ID: 165

Wilco Fleet: A380

Fly The Largest And Most Advanced Commercial Airliner Ever

Known as the world's only twin-deck airliner, the A380 is the most advanced, spacious and efficient airliner ever to roll off the production line.

Fly 555 passengers with a range of over 8000 miles. It's the behemoth of the skies.

- Highly detailed A380 replica
- Fully equipped 2D and 3D virtual cockpit
- Outstanding 3D cabin: luxury, 1st and economy class
- Cabin announcements with crew voices
- International liveries
- Fully functional panels including MCDU, Autopilot, APU, GPWS, PFD, ND
- Pop up EFIS screen for multi-monitor displays
- Paint kit to create your own airlines

HIGHLY RECOMMENDED

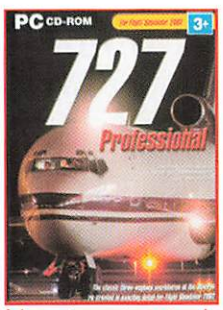
Cockpit gives you all the equipment you need.

Code:	WFA380
Title:	Wilco Fleet A380
Media:	CD-ROM
Publisher:	Wilco Publishing
Developer:	Feelthere Simulations
Price:	USD$34.95. AUD$64.95
Compatibility:	FS 2004

Online ID: 502

727 Professional

The Classic 3-Engine Workhorse Of The Skies



Whether it was whisking passengers to their destinations in safety and comfort or reliably hauling cargo night after night, the Boeing 727 became a firm favorite with operators around the world. This Microsoft Flight Simulator version is recreated in exacting detail.

- Fully animated everything!
- 4 different models - 727-100, 727-200, 727-100 cargo, 727-200 cargo
- 29 liveries of the major carriers using the 727
- Highly Detailed 2D and 3D cockpit
- Over 600 operative cockpit switches programmed in accordance with 727 operating manuals
- Authentic flight modeling Authentic 727 engine and cockpit sounds
- Fully functional Fuel Dump system

BEST SELLER!

The world on time... fly Fedex 727 cargo ops

Code:	727PRO
Title:	727 Professional
Media:	CD-ROM
Publisher:	JustFlight
Developer:	Captain Sim
Price:	USD$34.95. AUD$59.95
Compatibility:	FS 2004, FS 2002

Online ID: 1

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

PMDG 737 Next Generation 600/700

Heavy Jet Fan? This 737 is a MUST HAVE!

The B 737 NG is a highly realistic reproduction of Boeing`s New Generation Glass Cockpit Aircraft series 737-600 and 737-700. It thoroughly meets the exact standards for quality and completeness as a highly sophisticated commercial airliner.

This product is a full airliner simulation product for Microsoft Flight Simulator 2004 (and 2002) and includes a full avionics suite, mechanical and automation systems represented in Boeing's 737NG production aircraft, a member of the largest selling aircraft family in aviation history.

- Accurately scaled Boeing 737 version 600/700
- 4 different main panel perspectives
- Authentic Glass Cockpit/ Complete FMC and EFIS controls
- Virtual Cockpit and Cabin
- Most switches and systems operable and animated
- Flight model performing to manufacturer specifications
- Extensive printed Manual
- More than 20 liveries with another 50+ downloadable for FREE

Code:	737NG
Title:	PMDG 737 Next Generation 600/700
Media:	CD-ROM
Publisher:	Aerosoft Germany
Developer:	Precision Manuals
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004, FS 2002

Online ID: 163

PMDG 737 Next Generation 800/900

Takes the 737 to a whole new dimension!

With this new package PMDG offers the long awaited larger versions of the 737 series. This package contains the 737-800 and 900 in many various liveries.:

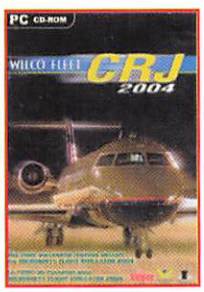
As well as the more recent 737 NG models 737-800, 737-800 with winglets and 737-900 you also get some new advanced features including:

- New TCAS system
- New FMC features
- New Autopilot Functions
- New Models with Dynamic Virtual Cockpit

Code:	737NG800
Title:	PMDG 737 Next Generation 800/900
Media:	CD-ROM
Publisher:	Aerosoft Germany
Developer:	Precision Manuals
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004, FS 2002

Online ID: 466

CRJ 2004



Fly The World's Most Widely Used Regional Jet

The CRJ (Canadair Regional Jet) is the most successful regional aircraft program in history. Only larger jet transports such as the Boeing jet family and the Airbus A320 family have been delivered in such numbers.

Today, the CRJ has been used in over 20 countries: Europe, North and South America.

Here's your chance to fly the CRJ 200, 700 & 900 with Microsoft Flight Simulator 2004!

- Highly detailed CRJ replicas
- Numerous International Liveries - American West, US Air, United Express
- Fully animated moving parts across the entire aircraft
- Cabin announcements with crew voices
- Fully functional and fully equipped panels - Realistic FMS, GPWS, EFIS
- Anti-Ice, Wingview, comprehensive PDF manual.
- Bonus 30 minute CRJ video and 20 minute CRJ tutorial
- Much, much more...

Code:	CRJ2004
Title:	CRJ 2004
Media:	CD-ROM
Publisher:	Wilco Publishing
Developer:	Feelthere Simulations
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 414

ERJ145 Pilot In Command

Embraer Regional Jet 145

A pressurized jet for regional transport, the ERJ 145 is characterized by its high performance and low operating costs with 50 seats and a range of about 2500 km. Since first delivery in December 1996, more than 700 of this successful Embraer jet aircraft have been delivered to air lines around the world.

Here's your chance to fly the ERJ145 with Microsoft Flight Simulator 2004!

Made by the same team that brings you CRJ the features are as extensive as per the CRJ (see left).

Code:	ERJ145
Title:	ERJ145 - Pilot In Command
Media:	CD-ROM
Publisher:	Wilco Publishing
Developer:	Feelthere Simulations
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 477

Order Online 24/7 @ www.pcaviator.com

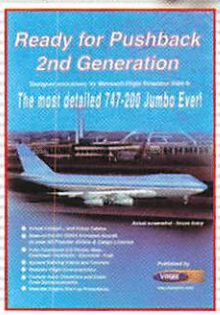
bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator

The Flight Simulation Company!

Ready For Pushback

747-200 2nd Generation



Most Extensive design ever in an FS-2004 aircraft including detailed fuel, hydraulic, electrical and other functional panels. You can even fuel your aircraft from the wing fueling panel.

- Over 400 working switches and gauges... enough to keep all 3 crew members busy
- Cabin crew announcements
- Real life engine start procedures
- Advanced aircraft models are based on FS-2004 Gmax Models.
- 50 detailed liveries and animated aircraft
- Flight dynamics tested by real 747-200 Captain
- The most thorough documentation ever produced for an FS2004 aircraft... includes a full tutorial

Fly a KLM Royal Dutch Airlines 747-200.

Code:	747200RFP
Title:	Ready For Pushback - 747-200
Media:	CD-ROM
Publisher:	VMAX
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 435

Fly The Airbus A380

Take off in the world's newest "jumbo" jet!

From the outset, the Airbus A380 was designed to be the largest passenger aircraft. With its unique two story passenger compartment, it can be outfitted to carry 550 passengers up to 8000 miles.

In addition to the strikingly handsome outer aircraft, you'll take notice of the interior. With full 3D virtual cockpit and customized Flight Management Computer (FMC) similar to what is found in the real thing and complete easy-to-follow documentation to learn how to use it. The FMC works with the Flight Simulator's built-in Flight Planner and allows you to fly virtually hands-off except for take-off and landing.

Also includes:

- 12 airline liveries
- Enhanced Scenery for Toulouse France
- Preplanned flights

The A380 In Qantas colors!

Code:	A380
Title:	Fly The Airbus A380
Media:	CD-ROM
Publisher:	Abacus
Price:	USD$19.95. AUD$34.95
Compatibility:	FS 2004, FS 2002

Online ID: 497

EuroWings 2004

A Superb Collection of Commuter Airliners With Detailed Cockpits

Features an expanded fleet of first class commuter aircraft - all uniquely equipped for realistic flight simulation!

Realistic flight dynamics have been tested and optimized by actual Eurowings pilots and combined with sounds that have been recorded directly in and around the aircraft to produce the most impressive expansion pack for both Microsoft Flight Simulator 2002 & 2004.

- 10 Aircraft and over 68 liveries give you dozens of different aircraft
- ATR42-300 • ATR42-500 • ATR72-200 • ATR72-212 • ATR72-500 • ATR72-200/72
- ATR72-200 freight version • BAe 146 Version 200 • Airbus A319-100, 200

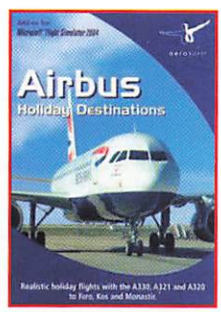
Fly A United Express BAe 146 Regional

Code:	EURWNG2004
Title:	EuroWings 2004
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004, FS 2002

Online ID: 162

Airbus Holiday Destinations

A Set Of Airbus Aircraft And A Set Of Holiday Destination Airports



This add-on for the Microsoft Flight Simulator contains part of the Airbus fleet with 3 well-equipped Airbus models as well as 3 superbly detailed European holiday destinations.

The aircraft models, an Airbus A330-200, A321 and A320 all have highly detailed cockpits (2D and 3D). Real sounds, original instruments and a realistic flight model are only some of the highlights of these fabulous virtual aircraft. They all have a functioning Flight Management Computer (FMC). The cockpit and especially the FMC have been programmed for all users who don't want to spend hours of studying manuals before flying these aircraft. All models are easy to use and fun to fly. The FMC imports the standard flight plans of the Flight Simulator.

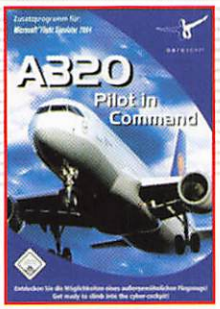
- A330-200, A321, A320
- 3 Holiday Airports, Kos (Greece), Faro (Portugal), Monastair (Tunisia)
- Dozens of liveries

Code:	AIRBHOL
Title:	Airbus Holiday Destinations
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 513

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

A320 Pilot In Command



The most realistic Airbus A320 this side of your local airport!

Developed and tested by an active Airbus pilot, A320 PIC gives you the meticulously detailed panels, the true-to-life Flight Management Computer (called the Flight Management and Guidance Computer in Airbus-speak) and dozens of nerve-wracking malfunction simulations that earned multiple industry awards for 767 Pilot in Command.

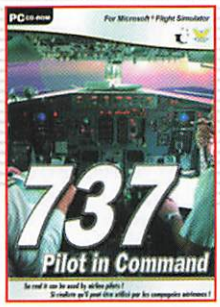
On top of that, A320 PIC delivers exclusive new features made possible by Wilco's proprietary new FS NAT (New Animation Technology).

- Active 3D cockpit
- Complete Cabin Navigation
- Interior Turbulence And Turning Effects
- Multiple Monitor Display With One PC
- Realistic Fly-By-Wire Simulation
- Complete Aircraft systems
- Complete panels features with all the usual acronyms.
- Multiple international liveries
- Comprehensive manual

Code:	A320PIC
Title:	A320 Pilot In Command
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004, FS 2002

Online ID: 90

737 Pilot In Command



Expand your 737 virtual aircraft collection with models for the 737-300, 400 and 500!

737 Pilot in Command offers all the features of other highly acclaimed Pilot in Command products, with new exciting and exclusive features that raise the realism altimeter to new heights!

Tested by active Boeing pilots, 737 Pilot in Command gives simmers the meticulously detailed panels, the true-to-life Flight Management Computer (FMC) and realistic simulation systems.

- Highly detailed 737-300, 400 & 500 replicas
- Numerous International Liveries
- Fully animated moving parts across the entire aircraft
- Cabin announcements with crew voices
- Fully functional and fully equipped panels - Realistic FMS, GPWS, EFIS
- Cabin mode and passenger view mode
- Much, much more

NEW

Code:	737PIC
Title:	737 Pilot In Command
Media:	CD-ROM
Publisher:	Wilco Publishing
Developer:	Feelthere Simulations
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 517

Fly To Hawaii

In a Widebody DC-10

- 13 DC10 Widebody Jetliners including Hawaiian Airlines, and their 70th year Special Anniversary Livery.
- Military KC10 Extender aircraft
  DC10 Photo-realistic cockpit environment
- DC10 real sounds from inside and outside the cockpit.
- Real World ATC audio recorded from actual Hawaiian DC10 flights to Hawaii
- 65 easy automated approach flights
- Real World Flight Plans (150) to exotic destinations all around the world.

Code:	FLYHAW
Title:	Fly To Hawaii
Media:	CD-ROM
Publisher:	Flightsoft
Developer:	Flightsoft
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 419

Fly To Cancun

In a Widebody DC-10

Mexico's Favorite Holiday Destinations For Microsoft Flight Simulator 2004. Cancun, Acapulco, Puerto Vallarta, Mazatlan, Cozumel, Chichen-Itza (and visit the famous Mayan Ruins), Isla De Mujeres (Island of the women), Monterrey, the hustle and bustle of Mexico City, and much much more.... All in Flightsoft's DC-10.

Code:	FLYCANC
Title:	Fly To Cancun
Media:	CD-ROM
Publisher:	Flightsoft
Developer:	Flightsoft
Price:	USD$34.95. AUD$59.95
Compatibility:	FS 2004, FS 2002

Online ID: 410

Fly To The Caribbean

In a Widebody DC-10

Fly DC10 approaches into all the famous destinations in the Caribbean like Aruba, St. Thomas, St. Martin, St. Croix, Martinique, Bermuda, and much more!

Code:	FLYCARIB
Title:	Fly To The Caribbean
Media:	CD-ROM
Publisher:	Flightsoft
Developer:	Flightsoft
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 495

Iron Knuckles DC9

Experience Flying The Commercial Jetliner Before The Era Of The Glass Cockpit!

Code:	DC9
Title:	Iron Knuckles DC-9
Media:	CD-ROM
Publisher:	Flight1
Developer:	Flight1
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004, FS 2002

Online ID: 40

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator

The Flight Simulation Company!

Wilco Fleet 777

Fly the Advanced 777 in FS2004

The "real" Boeing 777 is the first Boeing jetliner to be 100% digitally designed using three-dimensional computer graphics. Throughout the design process, the airplane was "pre-assembled" on the computer, eliminating the need for a costly, full-scale mock-up.

This add-on 777 provides a much more realistic aircraft than the default Microsoft Flight Simulator 2004 777.

- Highly detailed Boeing 777-200 version
- Photorealistic 2D panel including multiple views: overhead, pedestal
- Interactive Virtual cockpit
- Detailed passenger's view
- Numerous international liveries and Boeing's house livery
- Easy-to-use PAINT KIT
- Realistic flight dynamics
- Customized digital sound set
- Realistic animations
- TCAS, FMS, GPWS, MFD, Autopilot
- Much More

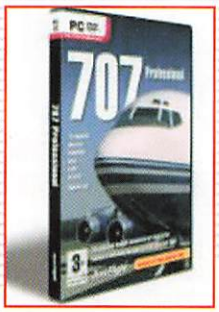
NEW

Code:	WF777
Title:	Wilco Fleet 777
Media:	CD-ROM
Publisher:	Wilco Publishing
Developer:	Feelthere
Price:	USD$44.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 518

707 Professional

Boeing's Landmark Airliner



Created in exacting detail from the high resolution liveries to the distinctive sounds of the engines. Variants of the 707 include the -320 ADV as well as the -320 in cargo guise. There's also the famous VC-137C known as "Air Force One" - the US President's personal transport - as well as the E-3A AWACS with its massive rotating radar dish above the rear fuselage.

707 Professional has all the features you expect in a high-level airliner add-on, with accurate animations and features such as TCE Textures and Configuration Editor and authentic 2D and virtual cockpits.

The package comes with 19 authentic liveries, including British Airways, Air France, Lufthansa, BOAC and Qantas.

NEW

Code:	707PRO
Title:	707 Professional
Media:	DVD
Publisher:	JustFlight
Developer:	Captain Sim
Price:	USD$44.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 523

DC3 and R4D

Comprehensive Models of the DC3 and R4D

The Douglas R4D and DC-3 from the Mid-Atlantic Air Museum set a new standard in both graphics and performance in Microsoft Flight Simulator 2004. Three different models - a military, astrodome equipped military version; a freighter, and a civil passenger model, are included on the CD in this outstanding package

In addition to the liveries, other free enhancements are available from the MAAM website. .

HIGHLY RECOMMENDED

Code:	DC3R4D
Title:	DC3 and R4D
Media:	CD-ROM
Publisher:	VMAX
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004

Online ID: 478

B314 The Clipper

The Queen Of The Floatplanes

Southampton, 1939.... You are the flight captain of one of the most exclusive aircraft to fly in the late 30s and about to cross the North Atlantic with your crew and passengers. Master this complex and cumbersome aircraft and bring them safely to the US, defying the elements and over 50 tons of metal, and human beings.

This is just one scenario embedded in the ADVENTURES section of the B314 Clipper. Technically, the Clipper is a masterpiece for those simmers who really want to know "how did they do it?"

Code:	B314
Title:	B314 The Clipper
Media:	CD-ROM
Publisher:	Pilot's
Price:	USD$39.95. AUD$69.95
Compatibility:	FS 2004, FS 2002

Online ID: 469

Roaring 30's

Fly Two Nostalgic Aircraft From The 30's

The product contains two aircraft of the era just before the 2nd World War, the Beech Staggerwing and the Stinson Gullwing. The main feature of this product is the look of the aircraft. The typical sleek, streamlined shape of the aircraft makes them amongst the most valuable old timers.

Special features will be the in-depth manual and the extreme details of the pilot animation (a feature that created a lot of attention for the FSFalcon product).

Code:	ROAR30
Title:	Roaring 30's
Media:	CD-ROM
Publisher:	LAGO
Price:	USD$34.95. AUD$59.95
Compatibility:	FS 2004, FS 2002

Online ID: 198

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

ATR 72-500

Puts you in the left hand seat of the ATR72 500

Exclusively designed for Microsoft's Flight Simulator 2004 (A Century of Flight), computer pilots can experience first hand what it is like to fly the real ATR 72-500.

Select to fly from the Captain's or First Officer's panel in either of the standard brown or newly available blue/grey cockpit configuration.

Experience the fully functional and highly detailed virtual cockpit with many never before features, such as truly working windshield wipers that remove the rain from the windows.

Take a stroll through the virtual cabin, checking out the detailed 3D interior including 2 different seating configurations, available in 4 different color schemes.

Explore the 3D exterior model and listen to the real cockpit and engine sounds recorded from the real ATR in a runup in Toulouse.

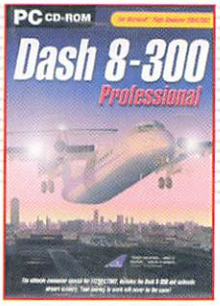
HIGHLY RECOMMENDED

Code:	ATR72
Title:	ATR 72-500
Media:	CD-ROM
Publisher:	Flight 1
Price:	USD$34.95, AUD$59.95
Compatibility:	FS 2004

Online ID: 460

DASH 8 Professional 2004

The Bombardier Dash-8 in over 17 different liveries



Here comes a real commuter special with two versions of the Bombardier (de Havilland Canada) Dash 8-300 in a total of 17 different liveries, scenery for three European airports from acclaimed designers, tutorials and utilities; all in one fantastic package.

Cockpit detail includes working weather radar, TCAS system, autopilot, programmable flight management computer, moving controls and authentic night lighting.

Aircraft included Dash 8-300 and Dash 8-300Q in multiple liveries. 3 bonus airports include Frankfurt, London City and Amsterdam Schipol.

Code:	DASH8
Title:	Dash 8 Professional 2004
Media:	CD-ROM
Publisher:	JustFlight
Price:	USD$29.95, AUD$49.95
Compatibility:	FS 2004, FS 2002

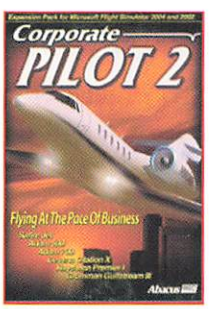
Online ID: 415

Corporate Pilot 2

Flying At The Pace Of Business

Fly your busy executives to their destination in these sleek aircraft:

- Gulfstream III
- Beechcraft Premier I
- Cessna Citation X
- Adam 700
- Adam 500
- Safire Jet.



Code:	CORPIL2
Title:	Corporate Pilot 2
Media:	CD-ROM
Publisher:	Abacus
Price:	USD$29.95, AUD$49.95
Compatibility:	FS 2004, FS 2002

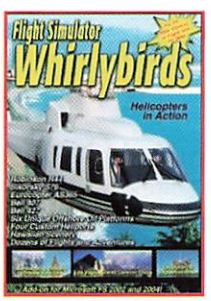
Online ID: 482

FS Whirlybirds

It's Now Time For Some Rotorcraft Flight

Coveted Choppers, Challenging Helicopters Ops and Enhanced Scenery.

- Robinson RS-44
- Sikorsky S76
- Eurocoptor 365
- Bell 407
- Bell 427
- Multiple Offshore Oil Rigs
- Heliport Lower Manhattan
- Heliport London City
- Heliport Las Vegas
- Heliport Grand Canyon
- Enhanced Scenery Hawaii



Code:	FSWHB
Price:	USD$29.95, AUD$49.95

Online ID: 36

Chopper Havoc

Low and Lethal Assault Helicopters

- AH-1 Cobra
- AH-64 Apache
- OH-58 Kiowa
- UH-1 Huey
- UH-60 Blackhawk
- SA-342 Gazelle
- VH-3D Sea King "Marine I Presidential"

Code:	CHOPHAVC
Price:	USD29.95, AUD49.95

Online ID:481

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

Cessna 172 Skyhawk

A Dedicated Highly Detailed Cessna 172 Aircraft

This dedicated Cessna 172 add on adds several levels of detail above and beyond the default Microsoft Flight Simulator 2004 Cessna 172.

The Flight1 Skyhawk 172R captures the spirit and feel of this famous and popular high wing, single engine aircraft. Features include a photo realistic 2D panel, 3D aircraft model, exceptionally clear virtual cockpit, new sounds, and flight dynamics that have been developed using the real performance tables.

The Cessna 172 in levitt cruises the Schwab FS2004 172

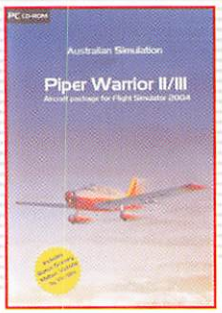
- GMAX Aircraft.
- Beautiful 2D-Panel
- Clickable Virtual Cockpit
- Highly Accurate Flight Model
- Authentic Sounds
- Skyhawk 172R Tutorial Flight
- Configuration Manager
- Text-o-Matic for Repaints
- Extensive documentation, checklists, and specifications to get you flying in no time.

Code:	172SKYH
Title:	Cessna 172 Skyhawk
Media:	CD-ROM
Publisher:	Flight 1
Price:	USD$24.95, AUD$49.95
Compatibility:	FS 2004

Online ID: 487

Piper Warrior II/III

The famous Piper Warrior is brought to life in Flight Simulator 2004!



Guaranteed to please all aviation enthusiasts, this real world direct competitor to the Cessna 172 offers an ideal low wing alternative trainer for any trainee private pilot.

This package comes with 2 models - an old and tired Warrior II with authentic worn instruments and a brand new, right off the showroom floor, Warrior III. The Warrior III features a dream fit-out with some of the most advanced avionics you would find in a small general aviation aircraft.

This aircraft has been developed and tested by actual Piper Warrior pilots and certainly gives the look and feel of a real Piper Warrior in all areas.

The Warrior with engine cowling removed.

Code:	PIPERW
Title:	Piper Warrior II/III
Media:	CD-ROM
Publisher:	Australian Simulation
Developer:	Australian Simulation
Price:	USD$29.95, AUD$49.95
Compatibility:	FS 2004

Online ID: 470

Bonanza F33A

Fly The Beech Bonanza!

It's a name and an institution and now here's your chance to fly the Bonanza on your PC.

This is a true-to-life replica of the 1971 Bonanza F33A. A throaty and lay-you-back-in-your-seat 285 Horsepower Continental engine with a 170 knot cruise speed and an 18,000 service ceiling gives you a high performance tourer to cruise the flight simulator skies.

- Interactive virtual cockpit
- Fully IFR equipped cockpit
- Custom panel and gauges
- Full moving parts and complete lighting
- Many fine details
- 12 Page printed manual with checklist & performance specs.
- Performance based on Beechcraft's documents
- Real Bonanza weight and balance

Do some real cross country touring with the 170 knot Bonanza

Code:	PCABNZ
Title:	Bonanza F33A
Media:	CD-ROM
Publisher:	PC Aviator Inc
Developer:	Carenado
Price:	USD$19.95, AUD$34.95
Compatibility:	FS 2004

Online ID: 506

Flying Club

If you like your aviation a little lighter

Four highly accurate and detailed general aviation aircraft:

- The PA28-161 Piper Warrior
- PA38-112 Piper Tomahawk
- Cessna 152
- The twin engined PA34-200T Piper Seneca II.

Based around Shoreham, UK, flying club airport.

Use the aircraft in Flying Club to take the flying lessons in Flight Simulator 2004 and further your aviation aspirations. Exciting tools in Flying Club include a Load Editor, passenger modeling and a repaint tool - you can even make the pilot's face your own!

The Piper Warrior's Virtual Flight Deck.

Code:	FLYCLUB
Title:	Flying Club
Media:	CD-ROM
Publisher:	JustFlight
Price:	USD$44.95, AUD$69.95
Compatibility:	FS 2004

Online ID: 494

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

Cessna 441 Conquest II

Your own luxury cabin class twin turboprop

The Cessna 441 Conquest II is a luxury cabin class, twin turboprop aircraft that cruises in excess of 300 mph and at an altitude of up to 35,000 ft. Flight 1's 441 Conquest II uses high definition gauges and panel systems with unique panel perspective views.
Combined with accurate flight modeling and state of the art 3-D modeling, the 441 Conquest II is the premier twin turboprop aircraft for FS2004.

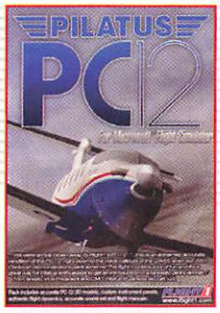
- Beautiful 2D-Panel
- Clickable Virtual Cockpit
- Highly Accurate Flight Model
- Authentic Sounds
- Configuration Manager

The Cessna 441 Conquest II

Code:	C441
Title:	Cessna 441 Conquest II
Media:	CD-ROM
Publisher:	Flight 1
Developer:	Dreamfleet 2000
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004, FS 2002

Online ID: 436

Pilatus PC-12



The Real Swiss Army Knife of Aviation

The performance of the 1200 hp Pratt & Whitney PT6A-67B turboprop engine, along with its Hartzell 4-blade aluminum prop, will take you to 30,000 feet as you SCREAM along at 310 mph. The available range of 2,239 NM will allow sim pilots to go coast-to-coast, with just one stop.

The aircraft add-on features include: a visual model with and without a virtual cockpit/cabin, accurate flight modeling, advanced glass avionics suite and a custom GPS system.

The package also includes caution and warning voice. Both high and low resolution virtual cockpit options are available, and Text-O-Matic repaint utility will allow you to expand your fleet with customized paint schemes. Also included is a detailed manual, point-and-click interactive tutorial and much, much more.

NEW

The Pilatus PC-12

Code:	PC12
Title:	Pilatus PC-12
Media:	CD-ROM
Publisher:	Flight 1
Developer:	SimFlyers
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004

Online ID: 461

Wilco Fleet: Caravan! Deluxe Edition

Light, Rugged and Versatile

This extraordinary aircraft does whatever it is called upon to do. AIRLINE missions where the Caravan connects smaller communities to major cities throughout the world and FREIGHT missions with its Herculean load capacity and short-field performances.

- Highly detailed Cessna Caravan levels above detail of default version
- Photorealistic 2D panels
- 3D Interactive Virtual Cockpit and 3D Cabin
- Two versions : AIRLINE for passengers and FREIGHT for cargo
- Multiple liveries
- Easy-to-use Paint Kit to create your own airlines
- Realistic flight dynamics based on manufacturer specifications.
- Realistic animations
- High resolution reflective textures, dynamic shine, night lighting and more!
- King package avionics

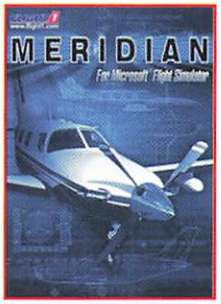
Includes bonus 30 minute video.

Caravan Deluxe is levels of detail above the Microsoft Flight Simulator 2004 default Caravan.

Code:	CARAVAN
Title:	Wilco Fleet: Caravan Deluxe Edition
Media:	CD-ROM
Publisher:	Wilco Publishing
Developer:	Feelthere Simulations
Price:	USD$34.95. AUD$59.95
Compatibility:	FS 2004

Online ID: 498

Meridian 2004



Fly The Piper Malibu Meridian!

This rendition of this sleek, fast and sexy single engine turboprop will have you soaring at 30,000 feet and 300+ knots in cabin class comfort.

This aircraft is about as close as you can get to simulating the entire Meridian on a PC. As well as a realistic representation in terms of visual and flight model you also get a fully functional avionics system. Glass!

The avionics system features the Meggitt (MAGIC) Avionics suite, Garmin GNS 530 and S-Tec system 550 autopilot.

This is one aircraft to definitely add on to your Microsoft Flight Simulator 2004.

HIGHLY RECOMMENDED

Meridian 2004 gives you a fully functional glass cockpit.

Code:	MERID
Title:	Meridian 2004
Media:	CD-ROM
Publisher:	Flight 1
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004, FS 2002

Online ID: 45

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator
The Flight Simulation Company!

Cessna 152
The World's "Trainer" of Choice

If you're still learning.... Cessna 152 gives you the flight simulator equivalent of the training aircraft of choice amongst training institutions around the world.

This aircraft has all the bells and whistles that most add-on aircraft come with including custom designed everything!

If you're a student pilot currently training in the C152, you can use this add-on to familiarize yourself with real Cessna 152 operations and impress your instructor.

HIGHLY RECOMMENDED

The 3D cockpit environment helps you become familiar with the real C152 cockpit.

Code:	C152
Title:	Cessna 152
Media:	CD-ROM
Publisher:	Flight One Software
Price:	USD$22.95. AUD$40.95
Compatibility:	FS 2004

Online ID: 16

Piper (PA-236) Dakota
Time to start some cross country touring

... And your perfect choice is the Piper PA-28-236 Dakota.

Three levels of performance up from the typical trainer the Piper Dakota (PA-28-236) is powered by a 235 horsepower Lycoming engine to give you a cruise speed of 145 knots with a constant speed propeller, fixed undercarriage, arrangement.

You'll cruise across the countryside fast, but not too fast to take in all of the sights beneath you. And when you need to get some altitude to clear mountains or go VFR-on-top the 17,500 service ceiling will let you do so with ease.

This product recreates all aspects of the real world Piper Dakota (PA-28-236) for you to fly in Microsoft Flight Simulator 2004 - all the way from intricate 2D and 3D cockpit detail, external surfaces, authentic engine sounds - right through to exact flight performance modeling.

The Piper Dakota

Code:	PCADAK
Title:	Piper (PA-236) Dakota
Media:	CD-ROM
Publisher:	PC Aviator Inc
Developer:	Carenado
Price:	USD$19.95. AUD$34.95
Compatibility:	FS 2004

Online ID: 507

Piper Cheyenne
Fly a nice twin turboprop aircraft in FS2004 - the Piper Cheyenne!

NEW

This software package contains no less than four versions of the most successful Turboprop family: Cheyenne II, I, IA and II XL. All four aircraft have been rebuilt and animated for Flight Simulator 2004 in 3D fashion, right down to the smallest of details.

Mechanical parts such as ailerons, rudders, flaps, engines and even windscreen wipers move just like in the original aircraft.

The excellent graphics of both the 2D- and 3D-Cockpits are equipped with all the avionic instruments usually found inside these models, and the precise flight dynamics have been developed with the help of real Cheyenne pilots. Besides the accurate panels for the pilot and the co-pilot, the cabin of the Cheyenne has also been rebuilt to the highest level of detail with its opening doors for passengers and freight.

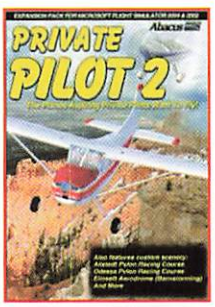
- 12 liveries for each model
- Detailed system simulation
- Bendix Silver Crown Plus Avionics Suite
- Trimble 2000 Approach Plus GPS
- Bendix King KFC250 Autopilot for the Cheyenne I and IA
- Bendix KFC300 Autopilot for the Cheyenne II and IIXL
- Duke Pressurization Controller for the Cheyenne I and IA
- Garrett Pressurization Controller for the Cheyenne II and IIXL

4 models of the Piper Cheyenne for you to fly!

Code:	PIPCHEY
Title:	Piper Cheyenne
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$34.95. AUD$59.95
Compatibility:	FS 2004

Online ID: 512

Private Pilot 2
A Collection Of Private Aircraft



This new package is a set of exciting light planes that will give you ample room flexibility to not only learn, but to master the skills needed by every private pilot. As a private pilot, you have the freedom to roam wherever your small plane can take you. Unlike larger commercial aircraft, you're not limited to long runways and air traffic control restrictions.

Private Pilot 2 delivers the planes that aspiring aviators want to fly!

- Six aircraft models 29 in all
- Piper TriPacer (wheels AND floats)
- Aviat Husky (wheels AND floats)
- Cessna 185 (wheels AND floats)
- Aerostar 700
- Diamond Katana
- Pilatus PC-12

The Piper Tripacer - just one of 6 aircraft in this package

Code:	PRIVPIL2
Title:	Private Pilot 2
Media:	CD-ROM
Publisher:	Abacus
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004, FS2002

Online ID: 449

Katana DA-20

Fly The 2 Seater Trainer from Diamond Aircraft

- Real flight dynamics
- Stunning soundset based on real recordings
- Exact animations of the gear, flaps, window
- Five liveries
- Accurate panel
- Large, readable gauges
- Completely simulated avionics
- Highly detailed virtual cockpit.
- Kneeboard with a helpful documentation.

Code:	KATDA20
Price:	USD$29.95. AUD$49.95

Online ID:250

C421 Golden Eagle

Fly This Pressurized Cabin Class Twin

The Cessna 421C Golden Eagle is a pressurized cabin class aircraft that offers comfort, speed, reliability and predictable handling in an airplane that can climb to a ceiling of 30,000 ft and a cruise speed of up to 258 knots.

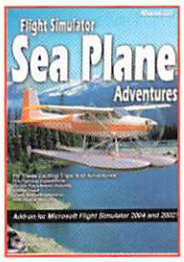
This recreation replicates the C421 in as close detail as possible by today's flight simulato standards.

Code:	C421
Price:	USD$27.95. AUD$49.95

Online ID:17

Sea Plane Adventures

The Exciting World Of Floatplanes



Master the techniques of flying off the water as you discover the hundreds of sea plane and float plane bases in Flight Simulator 2004 and 2002. 5 new aircraft and adventures in Alaska, the Florida Keys and the romantic Greek Isles.

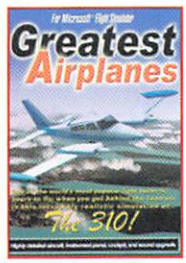
- Bombardier CL415
- Cessna 185 Float
- Zenith CH801 Float
- Republic RC-3 SeaBee
- DHC6 Twin Otter Float

Code:	SPADV
Price:	USD$29.95. AUD$49.95

Online ID:140

Cessna 310

Kick It Up A Notch with the Cessna 310



Here's a twin that will keep you busy - Flight One's Cessna 310 perfectly recreates this medium performance twin.

Everything you'll find in the Cessna 310 you'll also find with this virtual rendition for Microsoft Flight Simulator.

- Virtual Cockpit
- Complete moving parts
- Visible Interior and pilot
- Lighting reflections
- Accurate Flight Dynamics
- Authentic Sounds...and Much More

Code:	C310
Price:	USD$27.95. AUD$49.95

Online ID:151

Bush Pilot Adventures

Prepare Yourself For Some Challenging Bush Flying

Jump into the left-hand seat and fly these rugged planes into the bush:

- Piper Super Cub
- Aviat Husky
- Found Bush Hawk
- Zenith CH801
- DHC 6 Twin Otter

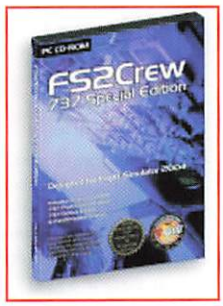
You'll pilot these rugged aircraft as you fly our pre-planned adventures flights:

- remote Canadian bush
- jungles of Guatemala
- Australian outback
- African svelte

Code:	BPADV
Price:	USD$29.95. AUD$49.95

Online ID:170

FS2Crew: 737 Special Edition



Specifically for 737 aircraft including, PMDG 737NG, PMDG 737 800/900 and the default Microsoft Flight Simulator 2004 737, FS2Crew adds all the extras to your flight that Microsoft left out including virtual Copilot, Flight Attendants, Ground Crew and Passengers. This voice add-on for FS2004's default 737 and the PMDG 737NG package is a must have

NEW

- Fully functional and interactive First Officer, Flight Attendant, Pushback Crew, Ramp Agent, Gate Agent and Passengers.
- Professional voice acting.
- An International voice set for the Ground Crew positions.
- Ultra detail. FS2Crew models SOP's used by a real-world 737NG operator.
- Full SID/STAR and IAP briefs are included for numerous world airports
- Thorough documentation and extensive tutorials are included to get you up and running as quickly as possible.

Code:	FS2C737
Title:	FS2CREW: 737 Special Edition
Media:	CD-ROM
Publisher:	fs2crew
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004

Online ID: 525

Cessna Cardinal

Fly the most popular club rented aircraft in the world

The DreamFleet Cardinal is modeled after N1384C, a 1978 177B operated by Knoxville Flyers*, a flying club based in Knoxville, Tennessee. The club currently owns three aircraft; a Cessna 152, Cessna 182, and this Cessna 177, and it is this 177 that is the club's most popular aircraft, being rented more often than any other! Once you have flown a Cardinal, and experienced her handling, roomy interior and speed, you'll understand why these aircraft prove so popular.

Code:	CDNL
Price:	USD$27.95. AUD$49.95

Online ID:181

benkcard MasterCard VISA AMERICAN EXPRESS Diners Club International

FDC Live Cockpit - Flight Deck Companion

The Complete Interactive Sound Environment For Every Aircraft For Microsoft Flight Simulator

Live Cockpit! brings your flight deck to life with full crew audio enhancements and a complete airport ambience including boarding sounds etc.

BEST SELLER!

- Choose from 15 different flight deck voice sets
- A virtual co-pilot catapults the sense of reality to new heights.
- Numerous flight deck calls are based on the aircraft type, weight and speed.
- Custom aircraft files for all aircraft published by Aerosoft will be included.
- Choose from 15 different flight deck voice sets
- You can hear the captain making flap and gear calls at the correct time and the virtual co-pilot will respond and will operate gear and flaps.
- Custom aircraft files for all aircraft published by Aerosoft will be included
- Also included is a Flight Log, Blackbox Log, and an extensive printed manual.

Code:	FDCLC
Title:	FDC Live Cockpit - Flight Deck Companion
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$39.95. $AUD69.95
Compatibility:	FS 2004, 2002, 2000, 98

Online ID: 412

Flight Sim Commander (v7.00)

This completely new flight planner is ideal for proficient Computer Pilots

It comes with a special flight planner, moving map and GPS which have a range of unique features never used with Microsoft Flight Simulator before!

FlightSim Commander 7 has a very complex flight planner for FS2004 with High and Low Altitude Routes, NAV to NAV Routes and Direct Routes. For the first time users can combine different types of route sections.

SIDs and STARs are also included as well as an automatic logbook and a monthly direct download and update of DAFIFF files (Route Data).

More unique features in this program are included in the Moving Map which can display all surrounding aircraft, even AI aircraft, in the air and on the ground and will even display their departure and destination airports.

Airport map windows will generate an airport layout schematic on demand.

A separate GPS window displays waypoint, arrival, airport, route information and the arrival ILS with an automatic frequency transmission on the radio panel. The virtual pilot can call up the weather report in METAR format at any given time.

Code:	FSCOM7
Title:	Flight Sim Commander
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$39.95. AUD$74.95
Compatibility:	FS 2004

Online ID: 465

Civil Air Patrol Pilot

CAP flies more than 100,000 hours each year performing important missions

The Civil Air Patrol, a voulunter organization, provides urgent search and rescue flights, air and ground support for disaster relief, flying officials and staff to remote locations, transporting essential medical supplies to accident sites and performing aerial damage assessment.

Civil Air Patrol Pilot add-on, we brings users of Microsoft Flight Simulator some of the many important operations that these volunteers fly each and every day. Using Flight Simulator you'll fly some of the same missions performing critical tasks that keep the CAP such an essential part of the our nation's resources.

Also includes these aircraft:

NEW

- Cessna L-19 Bird Dog
- Cessna 185 Skywagon
- Gippsland GA8 Airvan
- DHC-2 Beaver
- Cessna 172 Skyhawk

One of five flyable aircraft available in this add-on

Code:	CAPP
Title:	Civil Air Patrol Pilot
Media:	CD-ROM
Publisher:	Abacus
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004, FS 2002

Online ID: 519

FS Flight Ventures

Code:	FSFV
Price:	USD$29.95. AUD$49.95

Online ID: 453

EZ VFR

Code:	EZVFR
Price:	USD$29.95. AUD$49.95

Online ID: 200

EZ - Landmark

Code:	EZLM
Price:	USD$29.95. AUD$49.95

Online ID: 138

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

Jeppesen SIMCharts v3.0 3 Regions

Fly Instrument Approaches At Airports All Over The World

Jeppesen Approach Charts On CD-ROM For Your Flight Simulator 2004. View them onscreen, print them and even fly over them from within Flight Simulator 2004!

SIMCharts by Jeppesen is innovative software that allows flight simulator users the ability to Sort, View, and Print realistic Jeppesen terminal charts (SID's, STAR's, Approaches, and Airport Diagrams). All of the terminal charts for a particular coverage area are contained on an and easy-to-use CD.

- Expansive Database
- Review Your Flight Path – With SIMCharts
- Easy-to-Use and Convenient – Print the charts that you need in seconds
- Great Quality – All SIMCharts print in high-quality, easy-to-read clarity.

Regions covered:

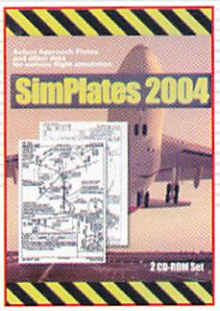
- Eastern United States
- Central United States
- Western United States
- Canada & Alaska
- Latin America/South America
- Pacific/South Pacific
- Eastern Europe/Middle East/Asia
- Europe
- Africa

HIGHLY RECOMMENDED

Code:	SIMCH3-3R
Title:	Jeppesen SIMCharts v3.0 3 Regions
Media:	CD-ROM
Publisher:	Jeppesen
Price:	USD$69.95. AUD$109.95
Compatibility:	FS 2004

Online ID: 58

SimPlates 2004



18,000 Actual IFR Approach Plates Plus a Comprehensive Worldwide Airport and NAVAID Directory

No More Flying Blind! Now have access to comprehensive Airport information and 18,000 printable instrument approach charts (for use with all PC Sims) on this 2 CD-ROM SET

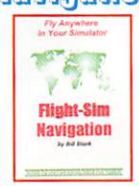
Set includes:

- IFR approach plates of all kinds
- Airport Diagrams
- Departure and Arrival Procedures
- Worldwide Airport/NAVAID directory
- Preferred routes databases
- Works with ALL realistic flight simulators, including: Microsoft Flight Simulator (all versions) and X-Plane.
- Plate Coverage: USA: Virtually every (99%+) instrument approach in the USA is represented (including small airports.
- Worldwide: Thousands of plates covering hundreds of mostly major world airports.

Code:	SIMPLT
Title:	SimPlates 2004
Media:	CD-ROM
Publisher:	Dauntless Software
Price:	USD$34.95. AUD$54.95
Compatibility:	All major flight simulators

Online ID: 152

Flight Simulator Navigation



Code:	BKFSNAV
Price:	USD$13.95. AUD$24.95

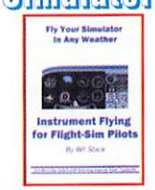
Online ID: 9

Flight Simulator Pilot's Information Manual 2005

Code:	BKFSPIM2005
Price:	USD$12.95. AUD$24.95

Online ID: 11

Instrument Flying For Flight Simulator Pilots



Code:	BKFSIFR
Price:	USD$14.95. AUD$29.95

Online ID: 12

Jet Simming

Code:	BKJS
Price:	USD$21.95. AUD$39.95

Online ID: 13

Flight-Sim Maneuvers

Code:	BKFSMAN
Price:	USD$12.95. AUD$24.95

Online ID: 8

Top Performance

Code:	BKFSTOP
Price:	USD$12.95. AUD$24.95

Online ID: 14

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator
The Flight Simulation Company!

Ultimate Traffic

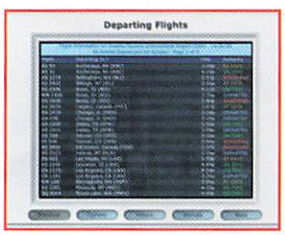
Ultimate Traffic enhances your Flight Simulator skies by adding real world air traffic (primarily airline) to your Flight Simulator 2004 skies and airports.

The traffic included in this product are based on real world airline schedules so whetever the time of day and airport, traffic at the airport and in the skies will closely reflect that of the real world.

Aircraft are recognized by the Flight Simulator Air Traffic Control engine which will take the traffic into consideration when issuing ATC instructions.

- 400,000+ Real-Time Scheduled Flights
- 800+ Airlines Worldwide
- 3000+ Airports with Traffic
- Online Updater/Enhancement Tool
- Adds a TCAS to any flight sim plane
- Status Board Just like you'll find at an airport terminal
- AFCAD Overlay Assigner
- Printable Timetables

HIGHLY RECOMMENDED

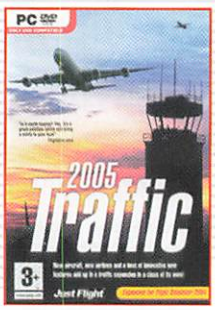


A unique feature of Ultimate Traffic is its flightboard function.

Code:	ULTTRAF
Title:	Ultimate Traffic
Media:	CD-ROM
Publisher:	Flight One Software
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004, FS 2002

Online ID: 194

Traffic 2005



This is the latest installment of the JustFlight Traffic series. Features new AISmooth technology which reduces number of go arounds at busy airports by instructing approaching aircraft to perform holding patterns if they are too close to traffic in front of them.

Also includes helicopter traffic and a custom voicepak.

- 280,000 scheduled airline flights
- 500 airlines
- 1200 different aircraft
- 1500 airports with airline rtraffic
- 1500 airports with GA traffic
- FS2004 Airport Adjustments
- FS Traffic Editor
- Radar-like Traffic Viewer - map and explorer
- Paint Assistant
- Also includes general aviation flights

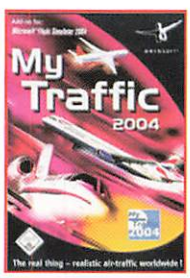
NEW

This is the latest addition to the Traffic series - includes new AISmooth

Code:	TRAF2005
Title:	Traffic 2005
Media:	DVD
Publisher:	JustFlight
Price:	USD$29.95. AUD$49.95
Compatibility:	FS 2004

Online ID: 522

MyTraffic 2004 V2.1



MyTraffic 2004 includes and has the capability to generate airliner, general aviation and military traffic in the most realistic manner ever experienced in FS2004. Whatever genre of flights you enjoy with your FS2004, MyTraffic 2004 provides the ideal environment by populating the skies with real aircraft on real flights just as in the real world from real world flight schedule data.

MyTraffic 2004 is a set-it-and-forget-it traffic addon with no distracting menu options. Just install and enjoy all the new traffic.

- 2,450,000+ Weekly Real-Time Scheduled Flights
- 6300 Airports with Traffic
- Touch and go flights at 100 small airfields
- Airliner, General Aviation and Military
- 1855 liveries
- 113 aircraft models
- Set-it-and-forget-it add on.
- Editor that allows you to go in an edit flights

HIGHLY RECOMMENDED

MyTraffic adds 2.45 million scheduled flights to your air traffic

Code:	MYTRAF2004
Title:	MyTraffic 2004 V2.1
Media:	CD-ROM
Publisher:	Aerosoft Germany
Price:	USD$34.95. AUD$59.95
Compatibility:	FS 2004, FS 2002

Online ID: 49

Airliner Pilot

Work Your Way Up The Aviation Ladder

Have you ever wanted to fly for a major airline? Wouldn't it be great if you could do it in Microsoft Flight Simulator 2004?

Now you can! Airliner Pilot is a unique piece of software that puts you into control of an airliner in your own fictional airline.

You will be promoted when you successfully completes a number of flights and a number of flying hours. The hours are determined on which options you choose.

Aircraft to fly: Dash 8 Q300 turboprop, Boeing 737-400 (default model), Boeing 777 (default model), Boeing 747-400 (default model). New models available for flying as you increase your rank.

This is a totally fun and challenging product that lets you simulate a virtual career of an airline pilot and gives you purpose to your flying.

Now you can fly these with a purpose. (Note - aircraft not included).

Code:	AIRPILOT
Title:	Airliner Pilot
Media:	DVD
Publisher:	JustFlight
Price:	USD$44.95. AUD$69.95
Compatibility:	FS 2004

Online ID: 501

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

CH Flight Sim Yoke & CH ProPedals

Improve Your Realism With This Authentic Yoke and Rudder Pedals

Say goodbye to ordinary joysticks. You're a serious Flight Simmer! It's time to upgrade to an authentic set of flight controls .

The CH Flight Sim Yoke USB gives you a flight yoke that's as close as you can get to the real thing without spending the many hundreds of dollars that you would on high end yokes. Now you can control your aircraft like a real pilot would with left hand on the yoke and right hand controlling your throttle, prop and mixture and managing the rest of your cockpit.

The CH Flight Sim Yoke USB gives you a flight yoke that's as close as you can get to the real thing without spending the many hundreds of dollars that you would on high end yokes. Now you can control your aircraft like a real pilot would with left hand on the yoke and right hand controlling your throttle, prop and mixture and managing the rest of your cockpit.

Save $10 Off the Regular Combined Price (and $50 off regular retail price) when you order the CH Flight Sim Yoke USB and Pro Pedals USB together!

Includes 2 Year Warranty!

Code:	CHFSYOKEUSB
Price:	USD$129.95. AUD$269.95

Online ID: 20

BEST SELLER!

Code:	CHPROPEDUSB
Price:	USD$129.95. AUD$269.95

Online ID: 21

Code:	CHFSYCOMBO
Title:	CH Flight Sim Yoke & ProPedals Combo
Price:	USD$249.90. AUD$504.95

Online ID: 402

CH Throttle Quadrant USB

Multi-Engine Throttle Quadrant Enhances Your Multi-Engine Flying.

The CH Throttle Quadrant USB is the highly anticipated multi-engine throttle quadrant you've been waiting for. With features including physical detents, reverse thrust and full programmability with 6 axis and up to 24 buttons, you can utilize 350 button positions.

Now you can control power on individual engines for twin engine props or even 4 engine heavy jets. Practice true asymmetric flying!

PRODUCT FEATURES

- Comes with 4 black knobs, 2 red and 2 blue - for Twin or Jet Engine set ups
- 6 Axis 24 Buttons, 6 Physical Detents
- Fullly Programmable with CH ControlManager software (included)
- Compatible with all Windows based games and simulators
- Built with the same rugged construction you've come to rely on with CH Products
- Made in the USA with a limited 1 year warranty and simulators

Code:	CH-TQU
Title:	CH Throttle Quadrant USB
Price:	USD$169.95. AUD$319.95
Compatibility:	Most flight simulators

Online ID: 167

CH FighterStick USB

Price: USD$129.95 AUD$239.95

Online ID: 19

CH FlightStick Pro USB

Price: USD$79.95, AUD$169.95

Online ID: 22

CH CombatStick 568 USB

Price: USD$89.95, AUD$189.95

Online ID: 18

Order Online 24/7 @ www.pcaviator.com

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

GoFlight GF-AC Cockpit Control System

Flip REAL Switches... Push REAL Buttons... Turn REAL Knobs!

THE fully modular Cockpit System for Flight Simulator. Gives you over 250 cockpit commands at your disposal!

"You can even start with just one module and add modules as required!"

Remember you have a 30 Day In-Home Trial. No Questions Asked Money-Back Guarantee!

With the GF-AC cockpit control system from GoFlight, you have up to 250 cockpit commands at your disposal. Flip real switches to start engines. Push real buttons to engage and disengage autopilot. Turn real knobs to tune your radios, and see the frequencies on real LED displays. Adjust pitch trim using a trim wheel, control landing gear with the "clunk" of a gear lever. Change views, display the GPS, zoom views in and out, pause and resume simulation... we're just getting started!

The GF-AC is totally modular. It is designed to be the most affordable and expandable way to create a home simulator cockpit ever created. Modules plug into your computer with Plug and Play USB connections. For desktop use, a sturdy, full-metal rack is available for conveniently mounting the modules. Or, mount them into your custom cockpit, connect the USB cable and go!

You can get started building your system today, for as little as $89.95. Expand it at any time, quickly and conveniently.

Even with all this cockpit control power, you'll be up and flying in minutes with GoFlight's easy-to-use GFConfig software. Assigning avionics functions is a simple "drag and drop" operation, and assigning switch functions is as simple as choosing them from a list. Microsoft Flight Simulator 98, 2000, 2002 and 2004 are fully supported.

Choosing Racks and Modules.

The modularity of GoFlight is such that they fit into the predefined racks. Modules are 2 inches or 4 inches making it easy to calculate the required racks and modules for the racks. Please check the price grid for the size of each rack.

GoFlight Modules

GF-166 Versatile Radio Panel

designed to look and operate like many of today's real-world NAV/COM counterparts, the GF-166 offers sophisticated looks and an unprecedented level of functionality in a 2" tall rack-mountable configuration.

The GF-166 can simulate the following type of avionics:

COM - 1, COM - 2, NAV - 1, NAV - 2, ADF, TRANSPONDER

When used as a COM, NAV, or ADF radio, the GF-166's dual 6-digit displays allow tuning of a stand by frequency, and a transfer button activates the newly-tuned frequency.

GF-MCP Advanced AutoPilot Module

The GF-MCP Advanced Autopilot module offers realistic simulationof a wide range of autopilot devices typically found in general aviation and commercial aircraft. Using the GF-MCP, it's simple to set the nav course, heading, speed, vertical speed, and altitude of your simulated aircraft. For sim pilots who enjoy flying the "heavy iron", the GF-MCP has advanced features like airspeed hold,speed readout in either knots indicated airspeed or MACH number, autothrottle sync capability, and a disengage control bar. Seven lighted pushbuttons are used to control autopilot engagement and various modes of flight from takeoff to touchdown.

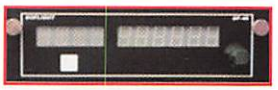
GF-RP48 Pushbutton & Rotary Switch

There are twenty different panel elements on the RP48 Panel Modulea ll brought together, providing a level of cockpit control never before possible in a 2" tall panel module.

8 Programmable Pushbuttons, 4 Rotary Control Knobs - Each of the control knobs on the RP48 can be used to adjust instrument panel settings such as altimeter, gyro, OBS1 and OBS2, as well as many others.

GF-LGT Landing Gear and Trim

Realistically control your aircraft landing gear, pitch trim, and flaps settings with the GF-LGT Landing Gear and Trim Control Module. Gear position is shown on the panel using three dual-color LEDs, which illuminate green when gear is down and locked, red when gear is in transition, and turn off when gear is up and stowed.

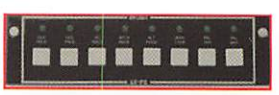


GF-46 MultiMode Display Panel

The GF-46 Multi-Mode Display Module enables the flight simulator pilot to control a broad range of cockpit functions, including general-purpose instrument panel settings, avionics stack, and 6-function autopilot. Based on GoFlight's best-selling GF-45 product, the GF-46's capabilities extend those on the GF-45 by including a single programmable pushbutton, dual concentric rotary encoder, and a rack mounting footprint ½ the size of the original GF-45.

GF-T8 Toggle Switch

The GF-T8 8 Toggle Switch/Indicator Module has 8 programmable toggle switches and LED indicators. You choose the functions to assign using GoFlight's GFConfig software, and label the switches using the MagLabels included with each unit.



GF-P8 Pushbutton Module

The GF-P8 8 Pushbutton/Indicator Module has 8 programmable pushbuttons and LED indicators. You choose the functions to assign using GoFlight's GFConfig software, and label the buttons using the MagLabels included with each unit.

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033
Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258

GoFlight ATC Headset Module

With the GF-ATC Headset Module from GoFlight, communicating with your fellow simulator pilots and with AI air traffic controllers has never been more simple or convenient. Front panel connectors on the GF-ATC bring your computer's audio connections within easy reach, allowing for fast connection of your favorite headset and/or microphone. GF-ATC's volume and squelch knobs help simulate a real world communications environment.

An integrated push switch and single-digit LED display give you fingertip control over the ATC pop-up menu and all menu selections.

GF-TQ6 Throttle Quadrant

The GF-TQ6 is designed as a stand-alone unit for the desktop and as a rack-mounted GoFlight module.

The unit is shipped in the default version as a twin-engine jet throttle console. It contains (4) jet throttle levers (4) thrust reverser levers, a spoiler lever, and a flap handle. It also includes a full prop handle set including 2 throttles, 2 prop and 2 mixture for multi-engine prop flying.

Racks

GoFlight Full Height Rack

The full height rack is constructed from aluminum, making it strong yet lightweight. It stands 15" tall, is 7.5" wide, and 10" deep. There is 14" of vertical mounting space within the module bay area.

GoFlight MiniRack

The mini rack is constructed from aluminum, making it strong yet lightweight. It stands 4.5" high, 7.5" wide, and 8." deep. The module bay area can contain either one 4" module or two 2" modules.

GoFlight Flight Deck Console

GF-FDC Flight Deck Console is designed to house up to 14 GF-AC Cockpit Control System modules. Features a large 18" H Horizontal module bay, a 4" H vertical module bay and 6" H diagonal module bay. Cockpit control modules can be arranged within the bays to create realistic-looking and operating simulator aircraft panels. The Flight Deck Console also includes a 12x6x2" chart pocket that can be mounted to the left or right side panel, providing a convenient location for charts, software, binders, kneeboards or other items needed by the simulator pilot during flight.

Accessories

GoFlight Module Bay Cover

GoFlight's module bay covers are used to fill up unused space in your GF-AC module bay. The module bay cover kit includes 7.5 x 2" cover plate, 2 metal thumbscrews

GoFlight Cable Organizer Kit

Lots of USB devices means lots of USB cables. Use our Cable Organizer Kit to keep them neatly bundled and labeled. Use the cable organizer kit to dress up your GF-AC system, keeping the module wiring neat and tidy, just like in a real aircraft.

Belkin 7 Port USB Hub

Connecting your GoFlight USB devices has never been easier, thanks to the Belkin 7-port Hub. 6V Powered. Includes power adaptor.

PC Aviator Offers FREE! Ground Shipping to US Destinations on All GoFlight gear

CODE	GF-166	GF-LGT	GF-MCP	GF-RP48	GF-46	GF-T8	GF-P8	GF-TQ6	GF-ATC
Title	Versatile Radio Panel	Landing Gear Trim	AutoPilot	Rotary/Pushbutton	Multi-Mode Display	Toggle Switch	Pushbutton	Throttle Quadrant	ATC Headset Module
USD	$169.95	$129.95	$299.95	$149.95	$129.95	$99.95	$99.95	$399.95	$149.95
AUD	$229.95	$214.95	$459.95	$244.95	$209.95	$169.95	$169.95	$614.95	$249.95
Height	2 inch	4 inch	4 inch	2 inch	2 inch	2 inch	2 inch		2 inch
Online ID:	77	84	85	87	179	88	86	125	454

CODE	GF-ACRACK	GF-MINI	GF-FDC	GF-COV	GF-7	UH7BK
Title	Full Height Rack	Mini Rack	Flight Deck Console	Module Bay Cover	Cable Organizer Kit	Belkin 7 Port Hub
USD	$99.95	$49.95	$199.95	$9.95	$14.95	$49.95
AUD	$169.95	$99.95	$359.95	$14.95	$19.95	$CALL
Height	14 inch	4 inch				
Online ID:	79	80	82	81	89	

bankcard MasterCard VISA AMERICAN EXPRESS Diners Club International

PC Aviator
The Flight Simulation Company!

TrackIR3 PRO Head Tracking System

Hands Free View Control For Your Flight Simulator

Imagine turning your head to the left and having your virtual cockpit display view turn along with you.... That's what the TrackIR3 Pro enables you to do.

The TrackIR3 Pro is an optical head tracking system that brings you a step closer to virtual reality. The TrackIR3 Pro mounts to the top of your monitor and tracks your head movement while in virtual cockpit view modes of some of your favorite simulators including Microsoft Flight Simulator, Lock On, IL2 and many other games.

Optional Vector Expansion Kit.

The optional vector expansion kit enhances TrackIR3 Pro to give you 6 degrees of viewing . That includes up, down, left, right, zoom in and out. The vector Expansion kits also comes with a cool Track Hat cap to mount your sensor.

Code:	TRKIR3PRO
Title:	TrackIR3 Professional
Manufacturer:	Natural Point
Price:	USD$124.95. AUD$229.95

Online ID: 411

Code:	VECTOR6
Title:	Vector 6 Expansion
Manufacturer:	Natural Point
Price:	USD$34.95. AUD$79.95

Online ID: 473

VideoFlyRec Flight Simulator 2004 Training DVD Videos

Watch Them On Your PC or TV

These unique flight training DVD videos for Microsoft Flight Simulator teach you the basics from light aircraft flying all the way through to advanced IFR approaches. Professionally produced you can watch them on your regular television DVD or on your PC. 4 Titles. The 737 specifically teaches you how to fly Dreamfleet's 737.

These NTSC videos are not available in Australia

Code:	VP-VPP
Title:	Virtual Private Pilot
Price:	USD$39.95.

Online ID: 411

Code:	VF-AMA
Title:	Advanced Meteorology IFR Approaches
Price:	USD$39.95.

Online ID: 488

Code:	VF-IFR
Title:	IFR Difficult Approaches
Price:	USD$39.95.

Online ID: 489

Code:	VF-737
Title:	VideoFlyRec 737
Price:	USD$39.95.

Online ID: 493

SystemBooster XP

Boosts your hard disk performance by up to 200% - especially photo-sceneries

SystemBooster is a unique utility that boosts your NTFS hard disk performance in Windows XP by up to 200%. It's a small footprint utility that sits in your system tray and prefetches certain data and stores it in memory. When your software calls for the data, part of it is already in your memory. So access is much faster. Drastically improves photo-scenery performance.

Code:	SBOOST-CD
Price:	USD$24.95. AUD$34.95

Online ID:520

JustPlanes In The Cockpit DVDs

Over 70 titles in stock

We also carry the JustPlanes In The Cockpit Aviation DVD's. With over 70 titles, theres too many to list here. For the entire range - please go to www.pcaviator.com and select Aviation DVD from the product menu. Titles range from $24.95 to $29.95.

O&O Defrag Professional V8

The Best Defragger Out There

File fragmentation is a phenomenon that acts to reduce hard disk performance. Hard disks require regular defragmentation and we endorse O&O Defrag as the best defragger for flight simulators. O&O Defrag will sort files according to folder and filename thus resulting in faster sequential access of files - especially photo-scenery.

Code:	OODFRG8
Price:	USD$44.95. AUD$79.95

Online ID:505

AudioPilot

Lets you plug your aviation headset into your PC

AudioPilot is a unique hardware item - exclusive to PC Aviator, that let's you use your aviation headset on your PC. If you're going to fly and listen to the controllers, why not do it with your real headset. Requires 9 volt battery - not included..

Code:	AUDPILOT
Price:	USD$34.95. AUD$64.95

Online ID:126

Ordering From PC Aviator Is Easy!

Ordering from our catalog is easy! Firstly - the easiest way to order is to order online via our website at www.pcaviator.com. Ordering online gives you the most correct shipping prices for your order which is especially useful if you are ordering from outside the USA or Australia. Of course you can always also use the order form on the right and mail, fax or phone your order.

Shipping Times

All orders received before 12 noon will be shipped the same day. If you are in the USA or in Australia, your order will generally be delivered (stock permitting) in 1 to 4 business days. If you are outside of these countries generally orders take up to 14 days to be delivered using regular Air Mail.

Calculating Shipping Charges

Our shipping charges are LOW for such a fast service!

In the USA - Simply add $3.95 for the first item and 50 cents for each additional per item. This equation applies to software orders. For larger hardware items there is a $5 surcharge due to bulk of size and weight.

In Australia - Simply add $4.95 for the first item and .75 cents for each additional per item. This equation applies to software orders. For larger hardware items there is a surcharge due to bulk of size and weight.

International Orders - It's difficult to create a one fits rate all for international shipping. The best way to get a shipping quote is to go to www.pcaviator.com, add the items to your cart and select your shipping method. You will be given the shipping quote at that time.

For larger hardware items… we suggest that you go to www.pcaviator.com and add the items to your cart to get an exact price for shipping of larger hardware items. You can then come back and use this order form if you wish.

Paying For Your Order

Our US Office accepts - VISA, Mastercard, American Express, Discover, Diners Club, Check, Money Order

Our Australian Office accepts - VISA, Mastercard, American Express, Diner's Club, Bankcard, Cheque, Money Order.

To Place Your Order

If you are mailing, faxing or phoning your order, simply go to page 2 of this catalog for the Phone Number, Fax Number or Mailing Address to place your order with your nearest office - USA or Australia.

To order online - simply go to www.pcaviator.com. Select your country and the shopping cart will determine which office services you.

Generally - all of Asia Pacific is serviced by our Australian office and the rest of the world is serviced by our US office.

Don't Forget Your Discount!

If you are a Computer Pilot subscriber, don't forget to apply your 5% discount to your pre-shipping order subtotal!

Finally

We do thank you sincerely for your order and really do appreciate having YOU as a valued customer. We trust that PC Aviator has provided you with the most exciting flight simulation shopping experience that you could ask for. Please tell your friends and associates who may also find our service valuable, about PC Aviator.

And one very important final item…. If we do not provide you with the service you expect or unintentionally or unknowingly let you down, if we don't know that we have wronged you how can we do anything to correct it? So please do the fair thing by us and tell us so we can redeem ourselves and correct it.

"If you thought our catalog was great… just wait…. The Best Service In The World really begins when we receive and process your order!"
"Realize Your Dream To Fly!"

© 2005 PC Aviator Inc, The PC Aviator Pty Ltd. All rights reserved. The Flight Simulation Company! And Realize Your Dream To Fly! Are trademarks of PC Aviator Inc.

Catalog compilation: Robert Ferraro
Editing: Robert Ferraro
Visual concept and graphic design: Derek "Baron" Davis

Clip this Order form and mail TODAY!

PC AVIATOR PRIORITY ORDER FORM

BILLING DETAILS:

NAME:

ADDRESS:

CITY: STATE: ZIP:

COUNTRY:

PHONE (DAY): PHONE (EVENING):

E-MAIL ADDRESS:

DELIVERY DETAILS: (If different from above)

NAME:

ADDRESS:

CITY: STATE: ZIP:

ITEMS

QTY	CODE	ITEM DESCRIPTION	PRICE	TOTAL

SUBTOTAL:

Less 5% discount (Computer Pilot Subscribers):

Shipping (see left):

South Carolina Residents please add 5% Sales Tax:

TOTAL:

Payment Details:

☐ Check ☐ Money Order ☐ Visa ☐ Mastercard ☐ Diners ☐ Discover

Credit Card Number: Expiry: Amount:

Signature Amount

REFER A FRIEND!

Please provide us with the name and address details of a friend, relative or associate who you think would like to receive The PC Aviator Flight Simulation Catalog.

NAME:

ADDRESS:

CITY: STATE: ZIP:

"PC Aviator thanks you for your order"

Order Online 24/7 @ www.pcaviator.com

The MONTHLY Magazine For Desktop Pilots and Flight Simulator Enthusiasts!

COMPUTER PILOT

Computer Pilot subscribers enjoy a 5% discount off everything in this catalog

"MONTHLY"

"Latest and Greatest"

"By flight simulator enthusiasts for flight simulator enthusiasts."

...the Magazine for Desktop Pilot's and Flight Simulator Enthusiasts

"Keep up to date"

"Make informed purchases"

"Discover and Learn"

"Full-color technical illustrations"

Begin receiving, in your mailbox, EVERY MONTH, the richest source of flight simulator information in any printed publication in the world today - Computer Pilot Magazine - The Magazine For Desktop Pilots and Flight Simulator Enthusiasts.

Computer Pilot is a monthly, full color magazine that's dedicated to flight simulation. It's created, written and published by flight simulator enthusiasts for flight simulator enthusiasts such as yourself.

Computer Pilot's writers (the cream of the world's foremost flight simulation experts) will keep you informed and educated on everything relating to flight simulation. Discover, learn and keep up to date with everything that you need to have the most enjoyable and richest experience possible, flying at your desktop.

- You'll stay up to date! Read all the latest news in the flight sim industry including the "latest and greatest" products at the leading edge of flight simulation technology.
- You'll spend less time grounded and more time flying thanks to the coverage and explanation of technical issues relating to flight simulations - including ones that you've most likely experienced.
- You'll make informed purchasing decisions after you read our comprehensive, informative and unbiased product reviews written by flight simulator experts"
- For internet surfers.... find out about the latest offerings online for flight simulator enthusiasts
- You'll get the most out of your flight simulations through articles written specifically to help you know the "ins and outs" of your simulations better.
- You'll learn to fly and become the best trained flight sim pilot on the block! No other printed publication or web site anywhere on this planet teaches you to fly your simulations like we do in Computer Pilot!! Our onboard Certified Flight Instructor teaches you to fly your simulations like you would fly a real aircraft! All the way from the absolute basics all the way through to advanced instrument flying. Explained carefully, yet comprehensively and intensely illustrated with full color technical illustrations that helps it all make sense to you. With our flight instructor articles, you'll be the best trained flight sim pilot on the block!
- All this and so much more... Page, after page, after page... month, after month, after month.... it's all flight simulation! It doesn't stop!

Computer Pilot is "the" definitive reference magazine for flight simulator enthusiasts worldwide. You'll find it at newsstands and bookstores but you'll pay full price there. Subscribe today and you'll enjoy savings of up to 48% off the newsstand price plus the convenience of having it delivered to your mailbox... EVERY MONTH!

Country	Six Months (6 issues)	One Year (12 issues)	Two Year (24 issues)	Three Year (36 issues)
USA	$24.95 (USD) Saving of $22.75 48% discount	$39.95 (USD) Saving of $55.45 58% discount	$69.95 (USD) Saving of $120.85 63% discount	$99.95 (USD) Saving of $186.25 65% discount
Australia	$44.95 (AUD) Saving of $14.15 24% discount	$79.95 (AUD) Saving of $38.25 32% discount	$149.95 (AUD) Saving of $86.45 37% discount	$219.95 (AUD) Saving of $134.65 38% discount
Canada	$39.95 (USD)	$59.95 (USD)	$109.95 (USD)	$149.95 (USD)
United Kingdom	$39.95 (USD)	$59.95 (USD)	$109.95 (USD)	$149.95 (USD)
NZ, Asia, South Pacific	$59.95 (AUD)	$114.95 (AUD)	$209.95 (AUD)	$299.95 (AUD)
International	$39.95 (USD)	$59.95 (USD)	$109.95 (USD)	$149.95 (USD)

We service you wherever in the world you might be all from the one website & through our LOCAL OFFICES IN Nth America Toll Free: 1-800-664-0033 Australia Toll Free: 1-800-807-747 INTERNATIONAL CALLERS: OUTSIDE USA +1 843-232-1160 OUTSIDE Australia +61 +3 9532 8258